Nov. 10, 1986

chemical marketing reporter

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CHEMICAL MARKETING REPORTER's market index of chemicals and related materials (100=1974 average), based on 97 key commercial chemicals, appears alongside with data for two weeks ago, last month and last year.

Nov. 7, 1966	152.33
Oct. 24, 1986	151.77
Oct. 10, 1986	151.23
Nov. 8, 1965	154.33

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NEWSPAPER [illegible]

INSIDE CMR

Finland Eyes Export Chemical Trade

Sales of Finnish chemical companies operating abroad rose to an estimated $1.34 billion last year and the total for 1986 could well exceed $1.6 billion as some major acquisitions complete their first full year of operation under Finnish management, according to Raili Nuortila, managing director of Finland's Chemical Industry Federation.

Speaking before a panel session on the internationalization of Finland's chemical industry, during a three-day meeting of the Finnish Chemical Congress in Helsinki, Mrs. Nuortila noted that the current figures are in sharp contrast to the total of little more than $110 million in turnover of Finnish-owned chemical companies operating abroad only five years ago.

Behind the sharp increases are important acquisitions during the past two years by the major state-owned groups, Kemira and Neste, but also the growing realization on the part of Finnish chemical companies across the board that international markets are likely to be their only basis for sustained, profitable growth, given the small and highly competitive domestic market.

Mrs. Nuortila says the estimated 24 percent share of chemical companies in turnover abroad last year represents an increase from 17 percent in 1984, the last year for which official statistics are available, and compares with 32 percent of the total garnered by the metal and engineering industries and 30 percent by the forest products industries in that year.

For the future, she sees a continued trend toward

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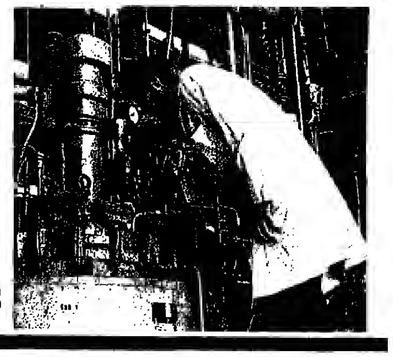

KEMIRA RESEARCH: Kemira Oy pilot plant at the company's Espoo research center near Helsinki develops experimental data for both organic and inorganic processes.

Chemical Marketing Reporter

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Standard Oil Chemical Signs For Butanediol Know-How

Standard Oil Chemical Company has signed an exclusive agreement to obtain technology from Davy Corporation for production of 1,4-butanediol, gamma-butyrolactone and tetrahydrofuran from maleic anhydride.

Davy's new low-pressure ester hydrogenation process, derived from earlier collaboration with Union Carbide Corporation, would use a maleic anhydride feedstock produced by Standard Oil's proprietary fluid-bed normal butane oxidation technology and the aqueous recovery and purification technology of UCB of Belgium.

Integration of the technologies is expected to provide significant cost savings in producing the chemicals, including more efficient energy use, byproduct utilization, waste treatment and materials handling, according to Douglas Campbell, Standard Oil Chemical president.

Process integration, optimization studies and engineering are underway at Davy's Lakeland, Fla., and London, UK, offices. The proposed Standard Oil integrated facility, to be built by Davy, would have annual maleic anhydride capacity of about 200 million pounds annually.

A spokesman says that as a long-term goal it's anticipated approximately 40 to 50 percent of the maleic would go directly to the maleic market and 50 to 60 percent into production of the derivative chemicals. However, the process is extremely flexible, he says.

The Davy process is an offshoot of the low-pressure oxo alcohols process developed by Davy with Union Carbide and Johnson Matthey. That technology is still very much alive and Davy has contracted most recently for alcohol plants in Poland and the Peoples Republic of China, adding to a dozen others that have been built around the world.

Carbide said last December that it would enter the butanediol market using maleic anhydride technology, but planned to purchase its maleic feedstock.

Trade consensus has been that such a project would not fly, since it is maintained that MA has to be part of the product integration, both from an economic and process balance standpoint.

A Carbide spokesman said last week that the company "has no plans to enter the (butanediol) market at present." Further, the company recently signed a long-term acetylene supply agreement with GAF Corporation. GAF, along with E. I. du Pont de Nemours & Co. and BASF Corporation, are the current domestic producers of butanediol.

While admitting that the maleic anhydride technology "looks interesting," BASF for one expects the acetylene-based process to remain the most attractive route well into the next decade.

Joseph F. Daly, manager of marketing research for the company's chemicals division, told a Chemical Marketing Research Association meeting in New York earlier this year that "even if a maleic anhydride-based process is commercialized, we still expect Reppe chemistry to remain the lowest cost route."

Standard Oil Chemical's Campbell says the agreement with Davy gives his company an opportunity to enter new markets with

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Carbide Sells Agricultural Unit To Rhone-Poulenc for Cash

Rhone-Poulenc, the French-based worldwide chemical giant with sales of $8 billion has reached an agreement to acquire, through its US affiliate Rhone-Poulenc, Inc., Union Carbide's agricultural products company. The price to be paid is $450 million in cash.

This acquisition includes the worldwide personnel, products, manufacturing and research facilities. The closing is scheduled for the end of this year.

It's been estimated that the business being acquired by Rhone-Poulenc earns around $40 million a year, although a shutdown at Institute earlier this year probably reduced that. Carbide closed the plant there for a period to make repairs, following an OSHA inspection that found deficiencies and resulted in a fine.

The company, which has a policy of not reporting specific earnings figures, said the division "is indeed a profitable business with good prospects for growth."

It's expected that the company will use the proceeds of the sale to reduce the big debt it incurred in fending off GAF's unsolicited tender offer.

The acquisition of Carbide's agricultural operation by Rhone-Poulenc fits in with a trend of European companies acquiring US chemical businesses. A recent major example of this was Hoechst's announcement that it will acquire Celanese.

According to Thomas M. Dilia, group vice-president for Rhone-Poulenc agricultural sector, "This acquisition reflects a key strategic objective of the RP Group to enhance its position in the US crop protection and plant improvement industry."

"Over the last six years we've made a commitment to growth in the US. First with the 1981 acquisition of Mobil Chemical Company's agrochemical business. More recently by our new product introductions and market expansions of proprietary herbicides and fungicides. And now with this acquisition the diversification of the product portfolio through addition of proven insecticides and plant growth regulators will help balance Rhone-Poulenc Agrochimie's strength in her-

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Sodium Tripoly Gets Boost from Powders

Sodium tripolyphosphate makers are of the belief that the product's steep demand decline of the past five years has ended. In fact, this year's consumption is so far exceeding last year's. Few are optimistic enough, however, to expect any demand increases through the balance of the decade and many would not be surprised by a slight decline.

This year's healthy consumption levels are welcomed by producers, who were forced to decrease production by 10 percent in 1985 as compared to 1964.

The 1985 decline came mostly as a result of the significant growth of non-phosphate containing liquid laundry detergents, which followed heavy advertising and promotional campaigns on the part of retailers. "Detergent producers were literally giving it away," observes Jim Huggins, product manager at Monsanto Company.

Also affecting consumption last year was preparation for late-1985 phosphate detergent bans in Maryland and Washington, D.C., and the reformulation of some dishwasher soaps, especially "Cascade", with reduced phosphate levels.

"This year, though," according to Mike DeCola, phosphorus product manager at FMC Corporation, "powders are getting the attention." Mr. DeCola believes 1986 STPP consumption will actually be up by 5,000 to 6,000 tons over last year.

Observers say the current powder attention has its roots in last year's slow but steady introduction of "Surf" home laundry detergent by Lever Brothers. Now, the advertising emphasis for other detergent makers such as Procter & Gamble and Colgate is also said to be turning more toward powder lines.

In addition, new product introductions on the powder front may prove to boost tripoly consumption. Notable detergents now being test marketed are P&G's "Tide Multi-Action Sheets", Clorox's "Act", and a new "Wisk" powder from Lever Brothers.

Also, producers say that in phosphate-allowed areas, branded products with higher phosphate content have been taking market share from lower strength generics.

Making the most commotion in the detergent world these days is P&G's "New Science Tide" which is currently in its second phase of marketing in Florida. The product features a built-in organic perborate bleach.

Any success for the product would likely be a wash for STPP, however. Mr. DeCola at FMC notes that "New Science Tide's" phosphate content is lower than traditional "Tide's" by about 6 percent, but that acceptance by consumers would likely be at the expense of some non-phosphate liquids market share.

All in all, however, this year's rally may be, as one producer put it, "something of a blip in the overall picture." Even with the powder advertising activity, liquid laundry detergent encroachment has continued in 1988, albeit at a slower pace. One producer says the liquid share of the detergent market

Continued on Page 43

P&G's 'Tide' products are making a commotion in the detergent world these days. 'New Science Tide' is currently in its second phase of marketing in Florida.

Water Act Veto Drawing Fire Of Lawmakers, Environmentalists

Critics say President Reagan "is turning his back on all Americans" by vetoing an $18 billion plan to curb pollution of the nation 'a waterways, and the new Democratic-led Congress plans to send similar legislation back to the White House soon after it convenes in January. President Reagan vetoed the Clean Water Act amendments on grounds they were too costly, just hours before a November 6 midnight deadline for action on the bill and comfortably after the 1986 elections.

"Unfortunately, this bill so far exceeds acceptable levels of intended budgetary commitments that I must withhold my approval," President Reagan aeld in his veto mesaage.

Lawmakers end environmentalists, who had urged him in a series of news conferences to sign the legislation, responded immediately.

"By refusing to sign this enormously popular environmental health bill, Reagan is turning his back on all Americans," said Michael McCloskey, chairman of the Sierra Club. "It seems that the President considers saving dollars more important than saving lives."

"It is estounding that the President would veto legislation thet is at the top of the public's agenda," added Sharon Newsome, director of legislative affairs for the Nstional Wildlife Fedcration. "Now all Amcricans will have to wait for cleaner water."

Consumer advocetc Ralph Nader said President Rcagen "has broken faith with the Amcrican people not only by vetoing the clean water bill but by waiting until just after the elcction so the Amcricen people would not hnve a chance to register their judgement at the polls."

Both the Dcmocratic-led House and the Republican-led Senate had voted unani-

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Halcon Signs Pact With Nobel Affiliate

Nobel Chemntur AB, Kurlskoga Sweden haa signed an agreement with the Hslcon SD Group, for exclusive worldwide right to license Halcon's ctbylene-from-ctbanol technology.

Under the errangement, Nobel Chematur will assunse responslbility for marketing, but will be fully supported by Halcon SD while assimilating the technology.

Halcon's subsidiary Halcon Calalyst Industriea will continue to market and manufacture its proprietary "SymDol" catalyst utilized in the process. Halcon will retain the exclusive rights to license technology for the production of ethylene oxides and ethylene glycols from ethanol.

Nobel Chemstur, a company in the group Nobel Industries Sweden, is engaged in chemical engineering and supply of plants and technologies for ethanol and ethenol derivatives, explosives, phnrmaceuticals snd environmental protection.

EPA Cancels Carbon Tet

Environmental Protection Agency has issued a notice canceling all pesticide products containing carbon tet rachloride, with the exception of e single registration for use on encased museum specimens.

Carbon tetrachloride is currently registered in a number of products used as fumigants to control insects in stored grain, in flour milling and grain processing plants, as well as museum specimens.

EPA says its action is based on evidence that carbon tet poses cancer risks and adverse effects to the centrnl nervous system, liver and kidneys.

The registretion, sale and distribution of the pesticide for grain fumigetion has been suspended since December 31, 1985. Leftover stocks were used until last July. Carbon tet has been on the market since 1848.

From 1961 through 1884, 26.8 to 27.7 million pounds nf the chemical were used on epproximately 745 million to 870 million bushels of stored grain on and off the farm, according to the agency.

US, Mexico Reach Accord on Wastes

The US and Mexico say they have reached an agreement on the trana-boundry movament of hazardous waste and toxic substances. The bilaterai pact provides for notificetion snd, in the case of hazardous waste, prior written consent from a receiving nation to a proposed export, and for cooperation in returning improperly shipped msterials.

According to the agreement signed last week by Environmental Protection Agency administrator Lee Thomas and Mexican secretary of urban development and ecology Manuel Camecho-Solis, the two nations pledged to begin formal negotiations on e strategy to control air pollution caused by copper smeltera on both sides of the border.

The environmental chiefs also discussed Mexico'a progress in resolving water pollution problems in the San Diego-Tijuana border erea and in the New River.

Both sides reaffirmed commitment to the principles outlined in the Presidential Border Environmental Agreement of 1983.

Airco Set to Open Air Separation Plant

A new 1,000-ton-per-day gas liquefaction unit, the largest of its kind ever built in the US, goes on-stream December 31, 1988 when Airco opens its new Springville, Ind., sir separation facility.

Located mid-way between Chicago snd South Bend, the plsnt will supply liquid nitrogen, liquid oxygen and liquid ergon to the chemicsl, heat tresting, steel, food, and plastics industries in the four-state ares surrounding the facility.

To ensure a reliable supply of high-quality product, Airco installed a storage system capable of holding a ten day aupply of liquid product.

The new plant incorporatea the latest technology for automated loading, product analysis and pollution control. Airco's proprietary "Sentry System" measures gas purity to within 0.1 part per million and automatically fills trailers to the legal load limit.

BioTechnica R&D To Be Continued

BioTechnica International, Inc. reported it received notice from EniChem Agricoltura S.p.A. that Italien firm will terminate its collaborative research agreement to genetically engineer *Rhizobia* bacteria for use aa soybean seed inocula. After EniChem's funding of the research project ends in April 1987, BioTechnica plans to continue the project although the Company may seek funding from a new corporate collaborator.

Norman A. Jacobs, BioTechnica's president and chief operating officer ssys, "BioTechnica initiated this research program in 1883, and the technology rights will remain with BioTechnica. We have developed Improved *Rhizobia* strains which show promising greenhouse results, and the company plans to apply for epproval to conduct initial field teats in 1887 to corroborate these data. Although the less of this contract may adversely impact our 1987 revenue, BioTechnice has regained commercial rights to a key project in our agricultural biotechnology program."

Mr. Jacobs added, "EniChem took over this research program from Uniroyal, Inc. in April 1888, during the period when it was considering the purchase of the Uniroyal agrichemical husiness. EniChem subsequently decided not to make en offer for the Uniroyal business.

Stevan W. Schaafar, who has baen appointed exacutive vice-president for plastica and polymers by Occidentsl Chemical Corporation. Tha company says tha appointment reflects his increased responsibilitiae following tha acquisition of Tennaco Polymare, Inc.

Industrial Gas Firms Are Acquired by UGI

UGI Corp., says that its AmeriGas subsidiary bas acquired related industrial gases distributors, based in Oakland, Calif., for en undisclosed amount of cash.

AmeriGas purchased the assets of closely held Pacific Oxygen Co. and Pacific Oxygen Sales Co. whose combined annual sales are epproximately $5.4 million.

The two companies distribute oxygen, nitrogen, argon and other industrial gases, as well as welding supplies, from Oekland, San Leandro, San Frsncisco and City of Industry (Los Angeles).

Edwin A. Wilcox, vice-president of UGI end president of AmeriGas Industrial Gasea, said the acquisitions will "strengthen existing AmeriGas markets in California end provide s base load for our new air separation plant that is being built in Sacramento."

Mr. Wilcox said operations of the firma will be merged into the Pacific Region of the AmeriGss Industrial Geses Division, which has 28 distribution locations in California.

Bioassay to Sell Toxicology Labs

Bioasssy Systems Corporation says it will sell its toxicology facility in Woburn, Mass. to US Biogenetics, Inc. US Biogenetics will pay $250,000 for Bioasssy's interest in its lcase and for certain laboratory squipment at Woburn. Bioassay will retain all other financiol assets and liabilities related to the Woburn operation.

The company also expects to sell its toxicology facility in Decatur, Ill. by mid-December to a separate purchaser. The sales would be subject to shareholder approvnl. Bioassay, which has been considering redeployment of its assets since the beginning of 1888, says "unfavorsible climate in the toxicology market" led to fewer studies being placed with its operating subsidiaries and losses in the business.

The company has alao agreed to sell its interest in IRE-Medgeniz SA, a joint venture astablished in 1985 to market and sell diagnostic products in Europe.

S&W Gets Contract For Ethylene Unit

Stone & Webster Engineering Corporation will supply technology and basic engineering and design services for the 450,000-metric-ton-e-year ethylene plant to be built for Formosa Plestics Corporation near Linyuan on Taiwan's southeastern coast. A faat-track schedule calls for completion in eariy 1889.

The olefins unit, whicb will use Stone & Webster's USC (ultraselective conversion) process, will supply ethylene and propylene to downstream manufacturing facilities.

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Dr. Hans Albers

Butadiene: Have Prices Hit Bottom?

Butadiene inventories have registered a steep decline in recent months, and sources say butadiene exchanges (lending and borrowing) are hard to come by on the Gulf Coast.

These developments have been cs used by a sharp drop in butadiene imports this year, leading sources to speculate that butadiene prices have finally hit bottom.

The bottom for butadiene bought on the US Gulf Coast is 9 cents per pound. Sources say prices aren't expected to firm in the near term since demand is soft. But it appears European exporters of butadiene have watched the price sink low enough, and are now reluctant to ship product to the US at prevailing prices.

Instead, a growing number of European ethylene producers are re-routing the crude C4 streams produced in the ethylene crackers (minus isobutylene) back into the olefin plants where the streams are co-cracked with fresh feedstocks. Eugene J. Dehreczeni, a member of De Witt Consulting Group, Houston, Tex., says 10 or 11 crackers in Europe are currently co-cracking a portion of

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Supreme Court Refuses to Hear Appeal by Ortho

The Supreme Court last week upheld a lower court's decision to award $4.7 million to a couple who blamed a drug company's birth control product for their child's multiple birth defects.

The justices refused to hear an appeal by Ortho Pharmsceutical Corporation, which argued there is no scientific evidence linking its "Ortho-Gynol" contraceptive jelly with abnormal development of fetuses.

The damage award is believed by industry analysts to be greater than the company's yearly profits from its spermicide products, which are used by more than 3 million women.

Observers expressed concern that the large award, combined with what they claim was a lack of evidence in the case, could deepen the lisbility crisis in the pharmaceutical industry and prompt discontinuetion of some products.

However, an Ortho apokesman says the company does not plan to take the birth control product off the market and the ruling will not have any financial impact. He says "less than a handful" of similar suits are pending against the company in other courts. Ortho has sold the spermicide since 1850.

In July 1985, US district court judge Marvin Shoob of Georgia ruled that Ortho Pharmaceutical, a subsidiary of Johnson & Johnson, was liable for varioua physical

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German Chemicals Slipped During '86; US Dollar, Oil Blamed

The German chemical industry's product prices dropped an average 5 percent during the year now ending, Hans Albers chairman of BASF and president of the German Chemical Industry Association (VCI) told a press conference for the association. Dr. Albers blamed the downhill slide of the dollar and the collapse of crude oil pricing.

"Even good domestic demand was unable to prevent sales of the chemical industry of the Federal Republic of Germany from declining about 8 percent during the first three quarters, according to our estimates," Dr. Albers says. He notes that although exports declined compared to domestic sales, they still accounn for 52 percent of total sales which increased the effect of the dollar's and oil price decline.

In specific chemical areas, Dr. Albers says that since the beginning of the year, sales of basic organic and inorganic chemicals like ammonia, sulfuric scid, ethylene and methanol heve become "less satisfactory" while a further decline for construction related products was stopped.

That wasn't the case for fertilizers, he ssys. They suffered from "massive lower-price initiatives," while pesticides were influenced by negative weather conditions.

In the consumer sres, sales of household cere products and cleaning aids declined, while demand for photograhic products rose.

Sales of specialty plastics and fibers held at a high level, as they have done of late. The same was true for dyes and pigments. "Also sales of textile, paper and leather industry products were in general satisfactory," Dr. Albers says.

In contrast progress in pharmaceuticals appeers weaker, partly, he says, because of discussion among public health authorities about the need to reduce costs. As in other areas, pharmaceutical exports are "notebly reduced," he adds.

As for the future, Dr. Albers expects little major change during the remsining eight weeks of the year," so, in sum, we probably don't need to be disatisfied with the economic results of this year."

Looking a little further ahead, he expresses confidence that the German chemicals industry's research budgets and investment programs now totalling about 18 billion marks are a "clear signal" that the industry

Continued on Page 26

Albers Vs. Environmentalists

Responding to assertions from the left that more environmental controls should be placed on the German chemical industry, Dr. Albers says the industry already spends 11 million marks every day to protect the environment and has voluntarily taken a number of measures to this end.

"In the lest twanty years emissions of chemicels have fallen about 80 percent, while during the same period production has increased by over 150 percent," he declares.

"We are the first German — and so far as I know — the first European industry branch to give itself guidelines on environmental protection," he says.

As an example of the industry's environmental self-regulation he said it recently voluntarily agreed with the Federal Environmentsl Ministry to reduce its use of polybrominoted diphenylether es a flame retardant. Other voluntary agreements cover soap and detergent materials snd an agreement to reduce ammonium content in waste water.

A pending agreement will cover a reduction of halogenated hydrocarbons.

Dr. Albers said the new "chemical politics" of the industry's critics in Germeny are besed on "principles of mistrust;"

- "That people and the environment are incressingly andsogered by the operations of chemical production.
- "That existing legal regulations are completely insufficient.
- "That further laws and taxes are needed, to hinder or avoid the threat to society and the environment."

Fertilizer Shipments Mixed; Exports Bolster the Market

Domestic disappearance of fertilizer products was 2 percent lower in September 1986 compared to September 1985, according to the Fertilizer Institute.

Shipments of nitrogen and phosphate products declined 4 percent, while potash movement rose 5 percent. For the year-to-date comparisons, disappearance was 1 percent below the July to September 1885 level for all products, while nitrogen was unchanged and phosphates rose 3 percent. US potash shipments for the period were 8 percent below those of 1885.

Production of all fertilizers in September was 8 percent below September 1885, while year-to-date production wss off 13 percent compared to last yeer. For the month, increases in production of phosphates (up 7 percent) and potash (8 percent) were offset by a 12-percent fall in nitrogen and e 29-percent drop in mixed fertilizer production.

Ending inventories in September were slightly lower than September 1885, dropping only 1 percent. Nitrogen inventories were unchanged, while phosphate and US potash inventories declined 4 percent and 3 percent, respectively.

For the second consecutive month, exports of all fertilizer materials rose more than 4 percent compared to the same period last year. Increases came in ammonium nitrate, ammonium sulfate, concentrated superphosphate, diammonium phosphate, potassium muriata and potssium sulfate.

Overall imports rose nearly 12 percent compared to the same period in 1885, led by nitrogen solutions, urea, and potash products.

Domestic disappearance of solid urea rose 108 percent in September compared to September 1885, and was up 75 percent for the period. Of the remaining nitrogen products, only liquid urea showed an increase for the month and year-to-date comparisons.

Nitrogen solutions disappearance fell 33 percent compared to September 1885. Anhydrous ammonia shipments lagged year-ago levels for the month by 4 percent.

Nitrogen production dropped 12 percent for the month and 15 percent for the year-to-date comparisons. Solutions production was reduced by 33 percent from September 1885 levels, while solid urea production jumped 18 percent.

Ending inventories of all nitrogen products showed no change from year-ago levels, but anhydrous ammonia stocks grew by 22 percent, nitrogen solutions by 1 percent and liquid ammonium nitrate by 24 percent.

Solid ammonium nitrate and ammonium sulfate inventories each fell 38 percent, while liquid urea stocks dropped 95 percent and

Continued on Page 30

CSMA Slams OSHA Rule In Comments

Chemical Specialties Manufacturers Association is expressing concern over a proposal by Occupationai Sefety & Health Administration to set a mandatory standard for the protection of laboratory workers dealing with toxic chemicals.

In comments filed with the agency on its proposed uniform standard for all laboratory workers, the chemical group urges OSHA to issue the proposed rule only aa a voluntary standard for at least those laboratories in the industrial or manufacturing sector, currently covered by the Federel hazard communicstion standard.

CSMA says OSHA hea failed to demonstrate a need for a final aiendard and points out that moat industrial laboratories already have programs with precautionary measurcs similar to those required by the proposed standsrd to reduce toxic substence exposure to workers.

REGULATORY BURDEN

"A mandatory standerd in this area will only becomc an additional regulatory burden resulting in needless expensc and rigidity on the regulated community," says CSMA.

The trade association also notes that the Reagsn Administration has failed to demonstrate s msnifest risk of injury or illness in industrial laboratories that would be reduced by the proposed standard.

In addition, CSMA questions the economic cost and regulatory burdens the proposed standard would plecc on small business as well as the manner in which it would be implemcnted and enforced by OSHA.

"It is our viewpoint that it would he an exceedlng drain on manpower and productivity if facilities arc required to have written standard operating procedurcs on every activity that is or could be teking place in n leboratory," the trade group says.

If OSHA decides a voluntary guideline approach is insufficient and issues the proposed standsrd, CSMA urges the agency to exempt laboratories that are covered by the hazardous communication standard from the proposed new standard.

Rohm & Haas Agrees to Sell Chemical Plant

Rohm and Haas Company has agreed to sell a California chemical plant it purchased in 1984 from Diamond Shamrock Corporation in order to settle a Federal antitrust complaint.

The Justice Department filed an antitrust suit against Rohm and Heaa in US district court, challenging the acquisition of Duolite International Inc. on the grounds that it reduced competition for a speciality product used in weter treatment equipment.

The government contends that the purchase of Duolite's California plant gave Rohm and Haaa more than a 50 percent share of the $112 million annual US market for ion exchaoge resins. As e consequence, the government says the acquisition is likely to "substantially lessen competition" in the resin market.

The antitrust suit is one of only e handful filed by the Justice Department during the Reagan Administration.

In 1883, Rohm end Haes was the top US producer of ion exchange resins with a 35 percent shere of US sales. Duolite ranked third with a 16 percent share.

The $45 million purchaae from Diamond Shamrock also gave Rohm and Hans Duolite's assets in France plus the firm's plant in Wales. Altogether, Duolite ranked second in worldwide sales behind Rohm and Haas.

In court documents, Justice says that aa a result of the acquisition, "actual and poten-

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GRACE PICKS EXECUTIVES: J.P. Bolduc, Terrance D. Daniels, and Paul D. Pagsnucci, who have been elected vice chairman of W.R. Grace & Co. J. Peter Grace, chairman, chief exacutive officer and president, said the appointments "will ansura an orderly transition for our compsny's msnagement."

Phelps Dodge Will Buy Carbon Black Producer

Phelps Dodge Corporation, the largest copper producer in the US, haa agreed to purchase Columbian Chemicals Company, a major producer of carbon black, as part of a corporate diverаification plan, the company announced last week.

Financing for the sequisition, which should be completed by December, pending approval of Phelps Dodge's board of directors, is being arranged by Morgan Guaranty Trust Company.

Carbon black pigment is used primarily in rubber applications such as automobile tires, as well as industrial applications including plastics, coatings and building products.

G. Robert Durham, president of Phelps Dodge, feels that Columbian Chemicals will be a comfortable fit for the company. Its earnings, less cyclical than copper's, should "help us bridge the deep troughs that affect copper price from time to time," he says, praising Columbian's "able management team, which will continue to manage and develop its business."

Columbian Chemicals, a privately-owned firm based in Atlsnta, earned a net profit of $23.2 million last year on sales of $305 million. Through September 30 this year, its net earnings totalled $19.8 million on sales of $230 million. The company, which also produces synthetic iron oxides, operates five carbon black plants in the US, and, through its subsidiaries, plants in the UK, Canada, West Germsny, Italy and the Philippines.

The company's chairmsn, Ladislsus Von Hoffman, affirms, "Columbian Chemicals is pleased to join the Phelps Dodge group of companies. Our customer relationship should be strengthened by our becoming part of this larger and publicly-owned organization, and our msnagement team looks forward to our new relationship, which I believe will benefit both companies."

The carbon black industry in the US, sflicted by overcapacity and imports, underwent considerable restructuring this year, when Phillips, a leading producer, left the market. Columbian Chemicals acquired Phillips' "Echoblack" plant in Orange, Tex., and its plant in Hsnover, West Germany this June. It also took over Phillips' share of a "Sovalco" carbon black production facility in the UK earlier this year.

Phelps Dodge intends to maintain its position in the copper market, Mr. Durhsm states. In September, the firm announced an agreement to purchase Kennecott Corporation's two-thirds ownership of Chino Mines Company, which operates a large copper mine, mill and smelter and complex in southwestern Mexico. This transaction is also expected to close by the end of this year.

Monoclonal Antibodies Show Promise in Animal Studies

Among the most promising and versatile tools under study in the animal-related research laboratories of the United States are high-tech, disease-fighting proteins called monoclonal antibodies.

Their promise is outlined by Dr. David B. Snyder of the University of Maryland in the 1986 Yearbook of Agricultura, "Research for Tomorrow," released last week by the US Department of Agriculture. Dr. Snyder is sssistant professor st the university's Virginia-Maryland Regional College of Veterinary Medicine.

In an article entitled "Improving Animal Health Through Monoclonsl Antibodies," Dr. Snyder teases readers' imagination with such questions as: "Wouldn't it be nice if cattle producers could choose the sex of their next calf? Better yet, what if s veterinarian could successfully locate and destroy tumors in valuable animals without using surgery, irradiation or chemotherapy?"

Other questions be poses deal with identifying diseases exactly and quickly, determining best times to breed, and quickly determining if milk is free from contaminants.

Dr. Snyder expects monoclonsl antibodies to bring all of these benefits and others in the relatively near future.

Monoclonal anlibodies slresdy are at work fighting economically significant animal diseases such as scours. One corporation awaits government approval to market a monoclonal antibody treatment for pseudorsbies in piglets, a herpes-related disease with a high fstslity rate.

Monoclonal antibodies get their name from the fact thst the cells which produce them sre cloned snd tbat they attack only one targeted aspect of an invading orgsnism.

They derive their rainbow of capabilities from their ability to attack and neutralize specific targets within a "forest" of sttackers brought in by an invading organism.

For instance, Dr. Snyder writes, monoclonal antibodies could be used as "magic bullats" to seak out and destroy specific invaders anywbere in an snimal's body, without tbe compilcstions and expanse of surgery, chemotherapy or irradiation.

With the sdvent of monoclonal antibodies, a series of very quick and very sensitive tests is surfacing. Dr. Snyder says tbese will allow a farmar to identify in a very short time exactly whicb agent has infected his or her poultry flock, replscing tests that now take days or weeks to complete. A corrective therapy or vaccination program can then be applied much faster snd economic losses cut sooner.

Carrying this a step further, Dr. Snyder foresees monoclonal antibodies used in the

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EPA Draws Praise For Toxics Proposal

A government ban on land disposal of certain hazardous wastes will mean a substantial improvement over past proposals for dealing with toxic contaminants, say environmentalists.

Environmental Protection Agency issued new rules, effective November 8, prohibiting land dispossl of dioxins and spent solvents snd requiring instead treatment of the substances to reduce their toxicity. Only the less toxic residues will tben be permitted to be disposed of on land.

Environmental Defense Fund praised the move as an improvement over an earlier agency proposal, saying the plan "would have made the land ban no ban st all."

But the group criticized a section of the EPA plan that offers exemptions of up to two years in cases in wbich treatment capscity is not adequate to handle the waste materials.

EPA already has granted extensions for several sub-categories of solvent wastes, most of tbem wastewaters. The materials covered by exemptions may continue to be disposed of on land until November 8, 1988.

"The new restrictions on the land disposal of solvents and dioxins represent s significant turning point in hazardous waste management," says EPA Administrator Lee Thomas.

"These rules will substantisily reduce long-term public health risks by requiring treatment of hazardous wastes to reduce or eliminate their toxicity before land disposal," he adds.

Solvents are used througbout industry, primarily ss degreasing agents. Some of their components have been linked to cancer in laboratory animals.

The regulations are the first in a series of requirements outlined in 1984 amendments

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Lee Thomas

EDB Ban Poses Problem For a Hard-Pressed EPA

Nearly three years after Environmental Protection Agency took emergency action to ban ethylene dibromide from the market, 328,000 gallons of the carcinogenic pesticide remain stored in warehouses across the nation, much of it possibly leaking from corroded drums.

Although the government paid EDB manufacturers $2.3 million to recall the pesticide it banned in February 1984, EPA officials acknowledge they have not been able to properly dispose of any of it.

At a special congressional oversight hearing in Washington last week, Douglas Campt, EPA's director of pesticide programs, said a number of complications have kept the agency from getting rid of the EDB still stockpiled in 42 states.

He said those complications include developing a workable disposal plan, selecting a contractor, acquiring state and local permits to chemically reprocess the EDB, and the lengthy time period required to reimburse manufacturers for their recall.

"The suspension of EDB was an emergency action necessary for the protection of the public health, a situation that did not allow for advance planning," Mr. Campt explained to the House government operations subcommittee.

He said the chemical companies paid for recalling the EDB are responsible for its storage, but because of the widespread leakage, EPA may have paid for some empty drums.

Most of the EDB is stored in Kansas, including some 80,000 gallons at an EPA laboratory in Kansas City, Kan. The material was originally held at a Vulcan Chemicals Company warehouse in St. Joseph, Mo., but was moved after EPA inspectors discovered leaking canisters last August.

After 20,000 gallons of the pesticide reached Kansas City, the city council voted to

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Scientists Are in a Flap Over Biotech Field Testing

Scientists from the National Science Foundation participated last Summer in field-testing a genetically-engineered rabies vaccine in Argentina without seeking approval from the Argentine or US governments, it was reported last week.

The Argentine government learned about the test in September and barrad any further experimentation.

US officials and scientists said the test, in which 20 cows were innoculated in July with a gene-altered viral vaccine at the agricultural station in Azul, raised questions about the effectiveness of the Reagan Administration's program to regulate the products of biotechnology research.

"I am not bothered by the idea of US research institutes and companies going abroad for their testing," said Dr. David Kingsbury, assistant director of the National Science Foundation, the nation's oldest biomedical research institution.

But Dr. Kingsbury, who coordinated the development of the Administration's regulatory program, said he was "appalled they did it without the knowledge of that country... Given the volatility and concern on this issue, you just don't do things like that."

Regulations signed by President Raagan in June do not prohibit US companies or research laboratories from testing genetically altered products in other countries.

The vaccine, according to Dr. Hilary Koprowski, director of the Wistar Institute in Philadelphia, has been under davalopment since 1983.

Researchers at the Institute spliced the single rabies gene into vaccinia, a common virus that has long been used to produce vaccines, including the smallpox vaccine.

"We have a lot of experience with this kind of vaccine," said Dr. Koprowski. "It was not my business to bring this to the Argentina government. It is my understanding that experiments done on the premises of the United Nations are under the responsibility of the

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News Capsule

Univar Gets McKesson

Univar Corporation has completed the purchase of McKesson Chemical Company. Univar will merge San-Francisco-based McKesson with Van Waters & Rogers Inc., Univar'a domestic chemical distribution subsidiary, based in San Mateo, Calif. Univar says the acquisition makes it the largest chemical distributor in North America.

Church & Dwight Buys

Church & Dwight Company Inc. has completed the acquisition of National Vitamin Products Company of Minneapolis. National Vitamin produces milk-based products for the dairy herd replacement, veal, swine, horse and specialty markets and has plants in Minneapolis and Elmira, N.Y.

BioTechnica Wins Patent

BioTechnica International Inc., Cambridge, Mass., says it has been awarded a patent for a novel method for the purification of phenylalanine, a major component of the artificial sweetener, aspartame. Corresponding patents covering the company's process are pending in other countries.

Cal Biotech Forms

California Biotechnology Inc. has formed a new international subsidiary, California Biotechnology International, to direct and implement the company's expansion outside the US. The first entity of the subsidiary will be Pacific Biotechnology Pty., a joint venture in Australia.

Shell Starts BPA Project

Shell Nederland BV has started construction work at its Pernis site near Rotterdam, for a $60 million modification of its bisphenol-A plant there. First part of the project, which will enable the company to produce bisphenol "F" (diphenylol methane) and epoxy resins based on it, is expected to be completed by the middle of 1987. The total project is expected to stream toward the end of 1988.

Mobil Sets Hydrotreater

Mobil Oil Corporation has awarded contracts for construction of a hydrotreater to cut sulfur emissions at its refinery in Torrance, Calif. Construction, scheduled to begin late this year toward completion by late 1988, includes the hydrotreater, a hydrogen plant and a sulfur recovery unit. The entire project will cost over $200 million. Ralph M. Parsons Company will work on modification of existing refinery units and M.W. Kellogg Company will build the hydrotreater.

UCC Sells Business

Union Carbide will sell the assets of its electrical carbon business to the UK's Morgan Crucible Company for $25 million in cash. Carbide says the transaction will have no material effect on earnings. The graphite electrodes business and other carbon-based products sold by UCC's carbon products business group are unaffected by the sale.

Goodyear Acquires

Goodyear Tire & Rubber Company will transfer the technology of its newly acquired subsidiary, Howdins, Ltd., in Britain to Goodyear technical centers in Luxembourg and in its Akron, Ohio, headquarters, and will end Howdins' operations in the UK. Goodyear still has about a week and a half to come up with a restructuring plan satisfactory to Sir James Goldsmith, the financier who is threatening to take over the company.

John G. Harron, who has been named president of SunOlin Chemical Company, Claymont, Del. SunOlin is a joint venture of Sun Company and Olin Corporation.

Borg-Warner's Financial Unit Put Up for Sale

While Irwin L. Jacobs, an investor based in Minneapolis, Minn., raised his stake in Borg-Warner Corporation to 7.4 percent, or 6,460,000 shares from 6.1 percent, the company pressed ahead with its program to ward off an unwanted acquisition by restructuring itself.

Borg-Warner, a diversified producer of air conditioning equipment and acrylonitrile-butadiene-styrene plastics, said it would put its Financial Services, Inc., subsidiary up for sale.

The financial subsidiary, which does business primarily as Borg-Warner Acceptance Corporation, is the fourteenth largest finance company in the US, according to the *American Banker*. Its net receivables at the end of 1985 totaled $4 billion.

The key advantage to Borg-Warner in selling off the financial unit is that it will free up

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Vista Chemical's Public Offering Is Firm's First

Vista Chemical Company, the Houston, Tex.-based privately held producer of polyvinyl chloride and detergent chemicals which was once part of the Conoco Incorporated operation of E. I. du Pont de Nemours & Co., is planning to make an initial public offering of 4,446,000 shares of its common stock.

The offering will be made through an underwriting syndicate managed by E. F. Hutton & Co. at a price which is expected to be in the range of $19 to $19 per share.

Proceeds will be used to redeem the company's outstanding special preferred stock, to repay indebtedness to be incurred to repurchase 3,705,000 common shares issued upon the exercise of warrants prior to the completion of the offering, and to reduce term indebtedness.

Of the shares to be offered, 3,994,000 will be sold by the company and 464,000 by certain selling shareholders.

Vista, which went private three years ago

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Sandoz Spill in Rhine To Have Many Effects

By the middle of last week a wave of poisonous chemicals spilled from a Sandoz facility at Schweizerhalle (Basel) had moved down the Rhine and into the North Sea, leaving behind some 500,000 dead fish and a political outcry that could very well lead to tougher chemical regulation particularly in Germany. The accident is potentially one of the worst European ecological disasters of recent years.

By the time the mixture of solvents, insecticides, herbicides and other pesticides finally reached Holland it had lost some of its potency. No fish died in the Netherlands, although some smaller fauna were injured.

On Friday, Swiss environmental officials said that the Rhine will need up to ten years to regain its ecological balance. They said it is unlikely that the fish population will be restocked for several years. Thirty-four species will be reintroduced, but according to the authorities the fish population cannot return to its previous level for a decade.

The police, meanwhile, were investigating to determine whether the fire that caused the spill was the result of a chemical reaction, a short circuit or sabotage, amid reports that the company might have violated Swiss law by, for example, storing chemicals in an area designated for machinery. Firefighters poured thousands of gallons of water per minute on the Sandoz plants and washed the chemicals into the river.

Even as the early effects of the chemical release were slowly abating there is fear of the delayed consequences that tons of mercuric compounds could have on the river. The plume of toxic chemicals was 42 kilometers long.

The major immediate problem is the residue of toxic waste on the river floor.

For the recovery to begin, micro-organisms have to drift into the polluted parts of the Rhine from upstream or tributaries, according to Peter Pettet, a Swiss environmental official. After six to ten years this would bring the level of aquatic life back to normal.

One long-term problem is that the toxic chemicals that settled on the river floor or flowed into the North Sea could eventually enter the human food chain through fish,

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Insect Pests Targetted

Controlling insect populations by tinkering with insect brains is not new, but some "mind-tinkering" chemicals discovered lately promise a higher degree of safety than most chemicals used in pest control, says Dr. Michael E. Adams, assistant professor of entomology at the University of California in Riverside.

Writing in the 1989 Yearbook of Agriculture, Adams describes two of the newer chemical insecticides which control insects' hormonal systems through their brains: chlordimeform and methoprene.

While there are forms of biological controls—such as sex attractants and viral diseases—that harm only the target pest, chlordimeform and methoprene are the first chemical insecticides targeted primarily to insects.

Dr. Adams says the most effective of today's crop protection insecticides are nerve poisons which are toxic to non-target organisms as well as to targeted insects. The new chemicals, on the other hand, tinker with neurohormone systems that are peculiar to insects, not to humans or other animals.

When chlordimeform is sprayed on plants, Dr. Adams says, caterpillars are so disoriented after just a few bites that they leave the plants. And, when chlordimeform is sprayed on the eggs of these insects, the eggs fail to hatch.

The insecticide works by changing sig-

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Diagnostics Market Reflects Shift in Health-Care System

Dramatic changes in the health-care industry because of cost containment pressures are resulting in major shifts in the structure of the health-care system.

The market for clinical diagnostics products reflects these changes more than any segment of the health care industry, according to Eric Rosenbaum, of Arthur D. Little, Inc.

Mr. Rosenbaum, who has completed a study of the US clinical diagnostic market, says demand for clinical diagnostics products will grow at 9 percent a year from $3.7 billion in 1985 to $5.7 billion in 1990.

"Within this market the most rapid growth, in percentage terms, will take place over-the-counter (OTC) and in physicians' offices," he says, adding that the hospital market will still account for 70 percent of product sales in 1990.

The major force for change in clinical diagnostics products, as well as paid services provided by hospital and commercial laboratories, physicians' offices, and drugstores is the prospective payment system for reimbursement of hospitalized patients on Medicare.

"Prior to the introduction of Diagnostic Related Groups (DRGs) in October 1983, there was a spendthrift attitude towards diagnostic testing because of lenient policies that called for 100 percent reimbursement," Mr. Rosenbaum comments. "Today, a far more fiscally conservative attitude prevails because every test performed is charged according to a fixed reimbursement fee."

According to Mr. Rosenbaum, the number of physician office laboratories will double in five years. "In 1995, there were 22,500 laboratories in physician offices, and by 1990, there will be approximately 49,000," he predicts.

"This rapid growth is due to a significant shift from individual and small group practices to larger group practices which are better equipped to offer on-site laboratory services," he adds.

The A.D. Little executive says clinical chemistry represents one-third to one-half of the total lab business in the hospital. "We have good reason to believe that while at present, clinical chemistry is only one fourth of the business in physician offices, the same potential exists," he says.

This opportunity, according to Mr. Rosenbaum, results from an increase in group physician practices that can afford to hire in-house laboratory technicians. At the same time, because of DRGs, some of the tests formerly performed in the hospital prior to surgery are now being done outside the hospital in the doctor's office.

The result of the market moving away from the hospitals and commercial reference labs, is that physicians are in a strong position to take advantage of this new opportunity," he says.

He emphasizes that diagnostic products

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OILS, FATS & WAXES

Coconut Oil Pricing Levels Supported by Dealer Trading

Coconut oil pricing is stronger now than it has been since January of this year. At the same time, the market has been very erratic lately and seems currently to be easing downward. Dealers and traders are not ready to call this a trend, though, given the unpredictable nature of the market in recent weeks.

The price began steadily rising in September, largely as a result of a spurt of dealer trading. In October the rise became considerably steeper, jumping 7 cents during the course of the month. Since late last month the price, though high, has been erratic and unpredictable.

For the most part, the market has been running on the strength of dealer to dealer trading since the initial firming began two months ago. Since that time the fundamentals have changed little, sources say, in that consumer buying is at a minimum, oil is readily available, and the market is being supported by dealer trading.

The changes that have been seen have been in the level of paper trading and the subsequent effects on pricing. According to a brokerage source, higher pricing saw the introduction of more copra onto the market, which served to weaken pricing.

BUYING BACK COPRA

Some origin dealers had been buying the material back, the source says, and then releasing it when prices firmed again. "An origin miller and US and European dealers were coming in and buying whenever the market softened," says a brokerage source. The result of activity like this has been the instability seen in the market, he says.

Consumers, in the meantime, are staying away from these strong levels, having stocked up extensively when prices were low. "Consumers don't need the material right now," says a buyer. "We'd have a hard time selling end-products with these raw material costs," he says, referring to production of coconut oil fatty acids.

Noting that the market cannot thrive for long without consumer activity, a source says, "Dealers can't do this forever — they have to ship eventually." Other sources agree, pointing out that producers in the Philippines are likely to be anxious to fill January contracts soon.

"They still have quite a bit of oil to sell before January," says a source, noting that freight commitments and impending holiday time off will spur the Philippines producers to sell by the middle of December. "Since they want to sell, prices may come down," says the source.

At the same time, US buyers' supplies are thought to be starting to ease their way down. "In another month or so consumers will have to buy," says a consumer. Asked to predict what will happen next, a brokerage source says, "The price may come down, but the consumers may also panic first and buy." At this point, traders feel that it is a waiting game to see whose needs are greater, those of the buyers or those of the sellers.

PRICES TRENDLINES

WEEK ENDING NOV. 14, 1986

CHANGES/UP

Cottonseed oil, Valley, ½c. per lb.
Linseed, extracted, 34% bulk, Minneapolis, $5 per ton
Palm oil, NY, ½c. per lb.
Soybean, 44% bulk, Decatur, .60c. per ton

CHANGES/DOWN

Coconut oil, NY, ½c. per lb.
Cottonseed, 41% bulk, Memphis, $5 per ton
Lard, loose, bulk tanks, Chicago divd., 2c. per lb.
Peanut oil, Southeast (restricted), ½c. per lb.
Soybean oil, Decatur, .58c. per lb.

OILS, FATS INDEX

The Oils, Fats & Waxes index reflects the prices of 11 representative materials in this sector and the quantity of each produced in 1985.

Nov. 14,. 1986	81.61
Nov. 7, 1986	82.74
Oct. 17, 1986	78.46
Nov. 15, 1985	86.37

Chemical Prices Start on Page 52

FRIDAY SPOT PRICES

MARKET CLOSE NOV. 14, 1986

CRUDE VEGETABLE OILS		
Coconut oil, NY	lb.	.20¼
Coconut oil, Pacific	lb.	NA
Corn oil, Midwest	lb.	.20½
Cottonseed oil, Valley	lb.	.17½
Linseed oil, Minneapolis	lb.	.25
Palm oil, NY	lb.	.16½
Peanut oil, Southeast (restricted)	lb.	.30
Soybean oil, Decatur	lb.	.1441
REFD. VEGETABLE OILS		
Coconut oil, t.w., NY	lb.	.26½
Corn, jumbo tanks	lb.	.2860
Cottonseed oil, jumbo tanks, NY	lb.	.27
Peanut oil, jumbo tanks, NY	lb.	.3930
Soybean salad oil, NY	lb.	.19¼
OILMEALS		
Cottonseed, 14% bulk, Memphis	ton	$180
Linseed, extracted, 34% bulk, Fargo	ton	$110
Peanut, 50% bulk, SE, Alabama	ton	$186
Soybean, unrest., 44% bulk, Decatur	ton	$165.80
FATS & GREASES		
Grease, white, choice, tanks, divd., NY	lb.	.10¾
Grease, yellow maximum 10%, ffa tanks	lb.	.9½
Lard, loose, bulk tanks, divd., Chicago	lb.	.13
Tallow, inedible, fancy, tanks, divd., NY	lb.	.1214
Tallow, inedible, bfph., tanks, divd., NY	lb.	.12

OILS, FATS & WAXES

CORN OIL — Availability of this oil continues to be very tight, with prices maintaining strength and easing upward. Consumers are said to be staying away from these high corn oil prices, except for free-standing refiners who do not have their own crushing facilities.

Interest among these refiners is strong, sources say, which is helping to keep the market as tight as it is. This interest is expected to remain at its current high level until early December, when refining activity generally sees a slowdown, according to an industry source. At that time it is hoped that crushers will be able to catch up to demand and begin to ease the tight supply situation.

LARD — The price of lard is down from last week's level, and has come down a total of more than 4c. per pound over the last four weeks. Traders have been seeing declining buying interest in lard, in both the domestic and export markets. The drop in interest is attributable to consumer avoidance of cholesterol, and increased switching to lower-cholesterol vegetable fats, according to an industry source.

PEANUT OIL — The market for this oil is quiet, as consumers are staying away from the high levels reached by peanut oil prices in recent weeks. Sources say that the buying that is going on is primarily among those buyers who lend to go specifically with peanut oil, while those who can substitute are doing so.

Prices are not expected to ease appreciably in the near future, though, since supplies are tight. At the same time, slack demand should prevent any serious shortages from occurring, sources say. As one brokerage source put it, "You can find enough oil to satisfy the thin demand that's around."

Since world peanut oil prices are generally lower than those of US oil, export business for US dealers has been nil, sources say. The price of US oil is not expected to rise much further, since it is already nearly as high as the US cost of imported oil.

RAPESEED OIL — The price of this oil has come down to 52½ to 56½c. per pound, in

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AROMATIC ORGANICS

Styrene Makers' Recent Gains Reflect Demand and Downtime

Styrene producers say thet the movement to raise prices that began in September has met with considerable success.

Contract pricing in August was reported at approximately 18 cents per pound. At present, most producers quote a contract level of 24 cents per pound. "By and large, 24 cents (per pound) is our base level," says a producer, and so anslyst observes that "most of the market is st 24 cents (per pound); there is not much (business) below that." However, with discounting, a producer notes, "most (large-volums) transactions are around 23 cents (per pound)."

Some producers announced list prices as high as 27 cents per pound for November 1, and one says "there was a potentisl for some business to move st 25 cents to 28 cents (per pound)," but this becsme difficult when one producer did not mske a change.

Huntsmso Chemicsl Corporation moved to a price of 25 cents per pound less a 3-cent-per-pound temporary voluntary allowance on October 1, and currently is said to be at 23 cents per pound.

A rival says thst "producers, with the exception of one, got up to the 24-cent- to 27-cent-per-pound (list price) range. It looks like it's shaking out at 24 cents (per pound)," with the granting of TVA's off the higher prices. Producers note thst the market was fairly quiet during the first two weeks of the month, as there wss s fsir amount of pre-buying activity in lste October.

Though competing producers point out that Huntsman is not a particularly major player in the merchant market, one ssys that "I have seen knowledge of Huntsman's pricing, get out to some customers who have never used them in the past."

CONTRACT POLICIES

Huntsman hss asserted that it does not discount off its list price level, which it feels is a realistic reflection of the market, and believes that the market might operate more efficiently if other producers did the same.

"We are not specifically aware of any Huntsman contracts with discounts," acknowledges a rivsl. However, when word of Huntsman's low list level gets out, his large customers tend to expect that price to be matched without at the same time offering to relinquish the discount provision of their contracts.

Another producer defends the policy of granting discounts. "It's unrealistic to think that everyone is going to pay the same price," he says, citing such factors as economies of scale and geographic location.

Producers attribute the upward pricing trend in recent months in part to the passing through of higher feedstock benzene costs. Since September 1, benzene spot pricing has risen 10 cents per gallon, and contracts have risen 7 cents to 10 cents per gallon.

Strong demand from the polystyrene sector did not fall off during the third quarter as predicted based on the usual seasonal pattern. It is estimated that demand from this area, which accounts for better than half of the styrene consumed, is running close to 10 percent ahead of last yesr's pace.

Unscheduled downtime in the industry, on top of numerous routine maintenance turnarounds, has played a role in tightening up the market, producers say.

A 500-million-pound-per-year part of the Monsanto facility in Carville, La. went down unexpectedly for 8 days in September; Chevron Corporation's 625-million-pound-per-year St. James, La. plant was forced down for about half of October; most recently, Shell Canada's plant has reportedly lost a substantial amount of production during the past week or so due to problems with a benzene unit.

Bureau of Census trade figures for the 3rd quarter reflect the changing styrene picture. With domestic producers hard-pressed to meet commitments here, exports during the third quarter fell off by a third from second-quarter levels. Non-US producers, recognizing the strong US demand and higher price, more than doubled the amount of materials they shipped into the US market from the second to the third quarter.

In the months to come, producers say they expect the market will continue to be firm, given expectations of strong polystyrene demand, maintenance turnarounds scheduled for the early months of 1987 and stable or slightly higher feedstock pricing.

PRICES TRENDLINES

WEEK ENDING NOV. 14, 1986

CHANGES/UP
None

CHANGES/DOWN
None

AROMATICS INDEX

The Aromatic Organics Index reflects the prices of 14 representative materials in this sector and the quantity of each produced in 1985.

Nov. 14, 1986	167.84
Nov. 7, 1986	167.84
Oct. 17, 1986	167.84
Nov. 15, 1985	167.84

Chemical Prices Start on Page 52

AROMATIC SOLVENTS — Amoco Chemicals Company says that pricing on two of its highly aromatic naphthalene solvents has been cut this month.

"Panasol AN-2L" has come down 40c. per gallon, to a level of $1.25 per gallon, from the previous price of $1.85 per gallon. "Panasol AN-2K" has moved down 40c. per gallon, to a price of $1.10 per gallon from the previous level of $1.50 per gallon.

The company attributes the changes to a passing through of lower basic aromatics pricing this year snd market trends. The prices of the two products had been unchanged since June 1984.

Amoco snys that its "Panasol AN-3N" price is holding steady at $1.05 per gallon. This price was reduced in April.

BTX — The spot benzene market last week was quoted at 87c. per gallon, up from 85c. the previous week, and equal to the general contract price level in the industry. One producer, Standard Oil, has a posting of 90c. per gallon.

According to a trader, the market was "not frantic, but firm" last week. Contributing to the firmness in the market, he says, has been strong demand for the major derivatives styrene, cumene, and cyclohexane.

Imports of benzene into the US during the month of September fell to 5.8 million gallons, the lowest level in more than a year, according to Bureau of Census figures. One market player says that, should spot pricing reach the 90c. per gallon level, heavier imports are likely.

Since September 1, the spot benzene market has firmed approximately 10c. per gallon, from 77c. to 87c. per gallon. Spot toluene pricing, on the other hand, was quoted last week at 87c. per gallon, equal to its September 1 level. The widening spread has led to speculation in the industry over the possible startup of some hydrodealkylation capacity.

The toluene market actually did keap pace with benzene last week, firming 2c. per gallon from the previous week's 85c. per gallon price, a move attributed more to a lack of supply than to demand.

One basic aromatics producer credits part of the trend towards higher pricing to year-end effects. "People are putting material in

AROMATICS

Inventory...suppliers don't want to sell, and buyers want to buy," he says. It is noted that buyers have an incentive to bolster inventories in order to avoid the 1.8c. per gallon Superfund tax that becomes effective January 1.

Xylene contracts are said to have been settled on at 78½c. per gallon. Leading buyer "Amoco was at 75c. (per gallon), the others were at 78c. (per gallon), so they split the difference," says a trader. The spot market had been approaching 80c. per gallon, but weakness in the paraxylene acctor reportedly provided some downward pressure.

BENZOYL CHLORIDE — Occidental Chemical Corporation says that, effective November 17, it is increasing its off-list price for tanktrailer and tankcar peroxide grade benzoyl chloride by 5c. per pound on spot purchases and aa contracts allow. Pricing is f.o.b. Niagara Falls, N.Y., freight allowed.

List pricing will be unchanged at 83½c. per pound, freight allowed, on tanktrailer and tankcar deliveries. The off-list price adjustment on bulk sblpments is attributed to increases in labor and raw material costs. Prices for drum quantities remain unchanged.

NITROTOLUENE — Firat Chemical Corporation aays it is raising its p-nitrotoluene price by 15c. per pound, effective immediately for spot material and as contracts permit. The bulk price changea from 75c. to 90c. per pound, f.o.b. Paacagoula, Miss., and the drum price for truckloads rises from 90c. to $1.05 per pound in truckloads, f.o.b. New Orleans.

A company spokesman aays the move reflects tightness in the market, which could be aggravated next year should production tail off due to alackening demand for the o-nitrotoluane laomer in the agricultural sector.

TDI — Producers of toluene di-isocyanate say they will ba increasing selling prices by 8c. per pound, effective December 1. New selling prices are not to exceed list pricing, whicb remains at $1.01 per pound in bulk.

"Material is short, and the market is very tight," aaya one producer, and another comments that the price increaae "is justified on the basis of demand and the need to rcstore profitability" to the industry. An industry-wide price initiative during the first quarter of this year was, for the most part, unsuccessful.

Producers point out that the export buainess has been strong, with attractive prices overseas, and that feedstock toluene coats bave been firm. From a supply standpoint, it is noted that numerous turnarounds arc acbeduled in the coming months.

TOLUENESULFONYL CHLORIDE — Akzo Chemie America, Chicago, and Rit-Chem Company, Inc. say their pricing on p-toluenesulfonyl chloride has risen in recent weeks to $1.55 per pound for direct delivory.

Biddle Sawyer Corporation announced a price increase earlier this month to $1.85 per pound for direct ahipment. A Rit-Chem apokesman does not rule out further increases in his company's pricing in the weeks to come, aaying that "prices arc increasing every day from Japan."

Biddle Sawyer receives its materisl from Japan as well, and both suppliers point to the reduced valua of the US dollar against tho yen and lowar saccharine production levels, upon which p-tolueneaulfonyl chloride production depends indirectly, as reasons for the change.

Akzo Chemie receives its material from tha Netherlands, and says it is sold out for the ramainder of 1986. A spokesman notes that orders already booked will ba delivered.

Carbide Sells

Continued from Page 3

bicidas and fungicides thereby enabling Rhone-Poulenc to more effectively serva all segments of the US farm business sector. We are confident this change will position Rhone-Poulenc as one of the 'new generation' of companies serving agriculture both in the US and worldwide."

"The merging of these two agricultural operations will place Rhone-Poulenc in the number three position in the world for companies in the crop protection industry and will enhance our US position as well as in numerous countries abroad."

Rhone-Poulenc Inc.'s US agrochemical operation is headquartered in Monmouth Junction, N.J. This expansion will add approximately 2,400 full-time employees to the US. The Union Carbide Agricultural Products company is headquartered on a 36-acre tract of land at Research Triangle Park, N.C., where the administration, marketing and R&D functions reside.

Its principal manufacturing facilities are at Institute, West Virginia; Woodbine, Georgia; Clinton, Iowa; St. Joseph and St. Louis, Missouri; Ambler, Pennsylvania; Calgary, Alberta, Canada; Beziers, France, and Cabo Frio, Brazil. There are six other formulation sites around the world. Excluded from the acquisition is the agricultural products business in India.

Lummus Crest Being Realigned

Combustion Engineering, Inc. is aligning its Lummus Crest subsidiary in response to what the company calls "changing conditions in its worldwide markets."

C-E says that beginning in 1987, Lummus Crest will concentrate process industry engineering and construction work at its offices in Houston, Toronto, and the Hague, and will relocate both its headquarters and technology center from Bloomfield, N.J. to Houston, Tex. They will share facilities with the existing Crest engineering center in Houston. The consolidated operation will consist of three divisions, the Lummus process technology division and the Crest engineering services division.

The process technology division will focus on a worldwide basis, the company said, concensed, proprietary technology for the processing of chemicals and petrochemicals for refining. Technologies such as those for ethylene, cumene, styrene, and the "Lummus" process will continue to be developed and marketed.

The Crest engineering services division continues to provide engineering, project management, and construction management services for the field development of onshore and offshore oil and gas production facilities. It will provide engineering, procurement, and construction management services to the hydrocarbon processing industry.

OILS, FATS & WAXES

Continued from Page 11

drums. The fall in price is the result of new crop oil's presence on the market. The yield is said to be strong, promising a good supply this year.

"The Canadian crop is all in," says a source, who is saying that "it looks like a bumper crush" for rapeseed this year. The size of the crop is said to be attributable to incentives, in the form of guaranteed minimum returns, offered to farmers in Canada.

The quality of the European rapeseed oil continues to be poor, a source says, resulting in more inquiries to US crushers and refiners from buyers in Europe and Japan. The US crop, not due for harvest until Spring, is said to be in good shape.

SUNFLOWERSEED OIL — The price of this oil is quoted at 15½c. to 16c. per pound for crude material, f.o.b. Minneapolis. The recent completion of the harvest resulted in a storage space problem, forcing farmers to move some of their seeds before they wanted to, according to an industry source. Currently supplies are plentiful and the market is trading at light levels, sources say.

At present dealers are waiting for some export business to Mexico. The expected orders from Mexico have been delayed, though, by the efforts of their government to support their own crushers. As a result, Mexico has been buying US seed, transporting it to its country, and then crushing it for oil, a source says. This is less economical than buying US oil, says the source, and present expectations are that Mexico will be in the oil market by January.

TUNG OIL — The price of this oil is quoted between 31c. and 33c. per pound for material in tanks imported into New York. Trading is progressing at normal levels, with "reasonably good" demand, according to an industry source. At the moment supplies are ample, but rumors of a short crop in Brazil persist. "We keep hearing about a short crop and impending higher prices, but we still haven't seen anything," says a source.

WAXES

BEESWAX — The price of refined beeswax is quoted between $3.05 and $3.10 for white in slsba in 100 pound containers, and between $3.10 and $3.20 for white in bricks in 100 pound containers. Yellow beeswax is quoted between $2.95 and $3.05 in slabs, and between $3.00 and $3.10 in bricks, both in 100 pound containers. The market for beeawax is aald to be steady, with regular buying activity facilitated by ample supplies.

USDA Scientist 'Distinguished'

A researcher who usea ultraviolet light and bacteria to detour farm chemicals from polluting groundwater is the US Department of Agriculture's 1986 "Distinguished Scientist of the Year."

Philip C. Kearney, a biochemist who heads the Pesticide Degradation Laboratory in Beltsville, Md., will receive the highest award given for scientific achievement and leadership by USDA's Agricultural Research Service.

ARS administrator Terry B. Kinney, Jr., will announce Kearney's award and awards to 10 other agency scientists during a ceremony in Washington Tuesday.

"Dr. Kearney is a versatile scientist, an innovative leader and a creative researcher," says Kinney. "Many farmers now dispose of pesticide wastes somewhere on their land, so Kearney's work to economically degrade those wastes right at the dump site, before they pollute groundwater, will benefit future generations as well as our own."

Dr. Kearney designed a mobile unit that combines high-energy ultraviolet light with oxygen to break down a pesticide before it enters the soil. "We moved the unit to a research farm and tested it on 11 major pesticides and were able to break down every one of them," he says.

Dr. Kearney also leads a group of researchers using biotechnology to engineer bacteria that destroy pesticides. The group has isolated and cloned a gene — that produces the enzyme parathion hydrolase — from a type of bacteria called a flavobacterium, increasing its ability to destroy pesticides.

Finland Eyes

Continued from Page 3

overseas acquisitions, joint ventures and marketing agreements, but not at the pace the industry has kept during the past two years. Federation estimates are for a modest 2 percent growth in Finnish chemical production next year, up from 1.5 percent in 1986, but well below the 4.1 percent average for 1975-1985.

Last year saw total gross value of production by the Finnish chemical industry nf about $7 billion, according to federation figures, with chemicals, fertilizers, plastics and fibers accounting for 31 percent and oil refining products 45 percent. The industry accounts for about a 15 percent share of production by all Finnish industry and a t0 to 12 percent share of exports.

Value of chemical exports during 1085 was about $2 billion, with 37 percent going to European Community countries, 28 percent to the European Free Trade Association (EFTA), in particular Norway and Swed 19 percent to East Europe and 16 percent other countries.

James R. Hickey, managing director of Strategic Analysis Europe, Brussels, Be gium, agreed with Mrs. Nuortila's predic tion that a variety of vehicles for internation ization are likely to be used by the industry the years to come, but cautioned that the are some pitfalls in traditional thinking.

With the chemical industry moving fro value added products, exports through d tributors, agents or sales offices abro he says. At the same time, he admits th some multi-product companies have suc broad range of products that they must rel on agents and distributors at times.

In his view, the Finnish chemical indus has moved into a "second phase" in inve ment strategy where companies are maki key acquisitions of foreign companies cl to their core businesses or taking up sp positions in such companies.

Taking Kemira, Finland's largest chem cal company, as an example, Mr. Hick points out that during the four-year perio from 1982 through 1985 the company's ter turnover has approximately doubled to $1 billion, 60 percent of it coming from ove seas.

Acquisition of the former American Cyanamid Company titanium dioxide plan at Savannah, Ga. in mid-1985 has been a exceptionally profitable acquisition so far he says, giving the company "a base to rea the largest titanium dioxide markets in world, the US." The US plant adds 90,0 t00,000 tons of the pigment to Kemi 80,000-ton domestic capacity at Pori.

Acquisition of the Donald Macpher Group in 1984 by Kemira's Tikkurila sidiary gave the group a strong position i UK coatings business and access to tec ogy, while purchase of the Rozenburg gen fertilizer complex of Esso Chemie the Netherlands, also in '85, provided ar tion in ammonia, the one plant notic company has locked in support of its 1½ lion-ton fertilizer base.

KEMIRA PLANS AMMONIA

Further, Kemira has plans for a 200,000-ton ammonia plant at the Halla BP Chemicals in the UK to be on stream the Fall of 1988 and is converting an 85 ton ammonia plant at Oulu to peat material, also for completion in '88.

While Kemira officials attending the ing were reluctant to detail the comp overall ammonia requirement, it's kn the firm is a net buyer of some 200,000 t ammonia annually, two-thirds of it imp from the Soviet Union.

Earlier possibilities for a world-scale monia plant in Finland, based on Soviet hogged down when Kemira and Neste sinte-owned oil firm and pipeline oper were unable to come to terms on gas pric

Like Kemira, Finnish Sugar Company other company with a sizable base in t domestic market, has been building its nationol presence during the past three ye through acquisition, joint ventures and ports, Mr. Hickey told the meeting. Turno of the company's international divisions been doubled over the past three years.

Unlike Kemira, however, the Finnsu division's most important products are of cialty, value-added materials such as p sweeteners, sorbitol and fructose, and cialty enzymes.

Acquisition of the Edward Mendell Co pany in the US in 1984 brought Finnsug firm specializing in tabletting additives wide variety of specialty sugars, against business for the Finnish parent.

Mr. Hickey also cites Prika Oy, a j venture of Neste and Kemira producing nol-formaldehyde resins for particle boa and specialty adhesives, as the type of raw gic alliance needed to penetrate foreign keta.

The company has been successful in fo ling two joint ventures in politically sensi areas — Mexico and Maylasia — as well acquiring in 1985 Chemibond Corporat third largest producer of these adhesives the US.

In other ventures, Orion Corporation h licensed Ita NASH (nucleic acid sandwich nology to E.I. du Pont de Nemours & Co. and the latter will market the technology throughout the world, while Nokia, one of the leading producers of sodium chlorate in Western Europe, has concluded a Canadian agreement whereby its electrolytic cell technology for producing sodium chlorate will also be marketed throughout the world.

For Finland, Mr. Hickey feels these and other such strategic alliances may be a critical factor in achieving more rapid penetration of foreign markets, particularly where international culture may play a major role in keeping countries out of certain markets.

Jukka Viinanen, senior vice-president, polyolefins, for Neste Oy, outlined the company's current position among Europe's polyethylene producers for the chemical congress.

With its acquisition of Unifos Kemi of Sweden two years ago, Neste laid claim to second place among Europe's polyethylene producers with 620,000 tons of capacity.

Further, the company has just signed an agreement with Elmont Belgium BV under which Neste will acquire a 120,000-ton-a-year polypropylene plant at Beringen in Belgium.

The transaction is expected to be complete by the end of this year. Plans call for engineering work to begin on a new 120,000-ton PP plant at Neste's Porvoo complex using Elmont's "Spheripol" technology.

Mr. Viinanen says the focus of the global polyethylene business is changing constantly. He points out that whereas Europe still had more than 500,000 tons of PE exports last year, this year the total will be more like 350,000 tons and in the next decade it's anticipated there will be very little, if any, export from Europe.

Meanwhile, in Saudi Arabia some 700,000 tons of capacity is already on stream and in Canada 565,000 tons is on stream or under construction.

The Neste executive estimates Far East projects add another 500,000 tons to the world total, although it is difficult to specify the projects by company, he says.

NESTE VIEW OF PE

Mr. Viinanen emphasizes that Neste doesn't consider itself to be in linear-low, low-density or high-density polyethylenes, but instead has looked at the business from another angle.

"We are in the film business, wire and cable, pipe, extrusion coating and molding businesses," he says, adding that, "That is the language the customer is talking and that is the language we intend to be talking."

Consumption of low-density and linear low-density for film uses in Western Europe is estimated at about 3 million tons, with molding uses taking about 350,000 tons, extrusion coating 300,000, wire and cable 150,000 tons and all other uses 225,000 tons.

Blow molding uses for high-density PE in Western Europe are believed to total about 740,000 tons per year, with injection molding accounting for nearly 500,000 tons and pipe, film and other uses totaling over 400,000 tons annually.

Mr. Viinanen told reporters in an interview prior to the congress he expects Neste Chemical sales of close to $1 billion in 1987. Total Neste Group turnover is about $7 billion annually.

The company claims 40 to 45 percent of the Nordic polyethylene market now and expects to mount a strong polypropylene effort to fill out a thermoplastics line that also includes polystyrene and polyvinyl chloride units.

Mr. Viinanen says that in addition to providing an outlet for excess propylene from the company's 170,000-ton unit at Porvoo, part of the rational for the move into PP at the plant was to stabilize the total thermoplastics picture.

Polyethylene prices fell some 30 percent over the first half of 1986, although raw material prices dropped by at least as much. The Nordic market for polypropylene is estimated at about 120,000 tons annually and is expected to grow rapidly. Mr. Viinanen says consumption in Finland is increasing in excess of 10 percent annually.

Neste's petrochemicals, Neste's board has approved an increase in ethylene production from 200,000 tons to 230,000 tons annually. The additional capacity is expected to be available by April of 1988 and a doubling of capacity for cumene to 140,000 tons will be completed shortly. At the same time, debottlenecking and use of Monsanto Company technology will raise phenol capacity at the Neste site to 75,000 tons per year.

Neste's polybutene-1 project with Idemitsu is going ahead and pilot facilities will be built at both Porvoo and Chiba toward possible construction of a commercial plant by 1990, depending on results from the pilot facilities.

Neste's plan to build a $100 million methyl tert-butyl ether plant in the Soviet Union through its engineering affiliate is on track and may even have been speeded up by the fact that there are now possibilities for a joint venture project rather than the compensation agreement as originally conceived, Neste says.

In another MTBE project, Neste has a 10 percent share in a 500,000-ton plant being built by Saudi Basic Industries Corporation.

Sabic owns 70 percent of the venture and EniChem of Italy and Arab Petroleum Investment Corporation each hold shares of 10 percent. The facility is scheduled for 1988.

Chemical Finance

USX Continuing Discussions With Would-Be Acquirer

USX Corporation said it is continuing its discussions with Carl Icahn "in an effort to clarify his proposal to offer $31 per share in cash for all of USX's common stock conditioned on, among other things, the right to carry out a due diligence investigation." USX added that there is no assurance that any agreement relating to Icahn's proposal will be reached.

USX also said that the previously announced restructuring study is proceeding, noting that First Boston Corporation and Goldman, Sachs & Co. will present various alternatives for review and evaluation toward the end of last week.

In another development, the Supreme Court has let stand a ruling that USX discriminated against some shareholders when its $3.75 billion tender offer for Marathon Oil Company, of Findlay, Ohio, was completed in 1982. According to the ruling, such discrimination occurred when USX extended the date of the offer, allowing additional shareholders to get into the pro-rationing pool for the cash portion of the merger price that was unusually more generous than the securities exchange offer for the balance of the shares.

Vista Chemical Makes Its First Public Offering

Vista Chemical Company, the privately held producer of polyvinyl chloride and detergent chemicals which was once part of the Conoco Incorporated operation of E.I. DuPont de Nemours & Co., is planning to make an initial public offering of 4 million shares of its common stock through an underwriting syndicate headed by E.F. Hutton & Co. The initial public offering price is expected to be in the range of $16 to $18 per share.

Proceeds will be used to redeem the company's outstanding special preferred stock, repay indebtedness to be incurred to repurchase 3,705,000 common shares issued upon the exercise of warrants prior to the completion of the offering, and to reduce long-term indebtedness.

Pharmacia of Sweden Raises Income 21 Percent

Pharmacia AB, the biotechnology and pharmaceutical company based in Sweden, raised its net income 21 percent in the first nine months to 63 cents per American Depository Receipt.

Ferro Purchases Rosemar, Additive Supplier

Ferro Corporation, Cleveland, Ohio, has acquired Rosemar Industries, Inc., Schaumburg, Ill., a suburb of Chicago. Rosemar is a leading manufacturer of liquid colors and additives for plastics and operates plants in Schaumburg, Ill., and Placentia, Calif., near Los Angeles, Ferro said.

The acquisition of Rosemar will give Ferro a total color capability by the addition of liquid colors to the company's existing products and services, comprising pelletized concentrates) and dry powder colorants, pre-colored resins and custom-color compounding, a spokesman for Ferro said.

The Rosemar operations will become a unit of Ferro's Stryker Thermoplastics Division, in Stryker, Ohio.

Hoechst-Celanese Merger Gets Gov't Review Date

The Hart-Scott-Rodino waiting period under the Antitrust Improvements Act for a merger of Celanese Corporation and American Hoechst Corporation will expire at 11:59 PM Eastern Standard Time on November 21, American Hoechst announced. Agencies during the intervening period, the Justice Department can extend the period by requesting more information if it sees any antitrust conflict in the proposed merger.

Hoechst said the date was set after it made changes in certain Standard Industrial Classification data previously furnished by that company to Federal Trade Commission and the Antitrust Division of the Justice Department.

Standard Oil Gets $5.5 Billion Credit Line

Standard Oil Company, Cleveland, Ohio, has accepted offers from 45 banks to provide committed credit facilities totaling $2 billion and uncommitted facilities amounting to $3.5 billion. These lines of credit replace earlier committed facilities totaling $3 billion put in place last year and establish the uncommitted facilities for the first time.

The new committed facilities run for 7 years. The uncommitted facilities, which involve no fees or predetermined rates, amount to promises by the banks to make reasonable endeavors to lend Standard Oil money, should it be needed. The terms of the arrangements are confidential, Sohio stated.

Gulf Resources Proceeds With Tender Offer

Gulf Resources & Chemical Corporation, Boston, Mass., has mailed the offer document relating to the previously announced cash offer for Imperial Continental Gas Association. The offer, valued at $1.07 billion at last week's exchange rate, is being made by Gulf Resources (UK) PLC, a wholly owned subsidiary, incorporated in the UK for this purpose.

Combustion Engineering Wins Syncrude Job

Combustion Engineering Simcon Incorporated has been selected to develop "Trym 3200" operating training simulator for Lummus Crest's "LC-Fining" process at the Syncrude Canada Ltd.'s oil sands extraction facility at Fort McMurray, Alberta, Canada. This is the second simulator project awarded by Syncrude to Simcon.

For this project, Simcon is supplying Syncrude with a full-scope process simulation system, including design and engineering, hardware, proprietary software, training and project management through site acceptance.

ImmunoGenetic's Sales and Earnings Increase

ImmunoGenetics, Vineland, N.J., said its revenues increased more than 15 percent to $4.9 million and its operating profits doubled for the quarter ended September 30, reflecting the continued strength of its core business operations in poultry vaccines and veterinary pharmaceuticals.

Net income for the quarter was $282,419, or 4 cents per share, as compared with $37,833, or one cent, in 1985.

Sterling Drug Buying 2 Million of Its Shares

Sterling Drug Inc., has authorized the purchase of up to 2 million shares of the company's common stock, with the assistance of Morgan Stanley & Co. The shares will be used for various employee benefit programs and for other corporate purposes. Sterling Drug has 59 million shares outstanding.

ALIPHATIC ORGANICS

Butadiene Takes

Continued from Page 5

their C4 streams, and attributes this trend to the sharp decline in exports this year. Co-cracking has become a necessity in Europe, Mr. Debreczeni says, because the two major markets for European exports, US and Japan, have developed new sources of supply this year at a time when European production at olefin plants has been extremely high.

In recent years, he says, the US has absorbed over 800 million pounds a year of European butadiene, while Japan has consumed up to 180 million pounds. However, the sharp fall in crude oil prices earlier this year prompted a large shift to heavy feedstock cracking at US olefins plants, thereby increasing output of butadiene. At the same time, Japan began accepting shipments of butadiene from Singapore and Korea, reducing its European take to under 50 million pounds.

In the US, butadiene imports totalled only 356 million pounds through September of this year, compared to almost 750 million pounds in the same period last year. This import decline outweighs the surge in US production this year, and is credited as the main cause for the domestic inventory decline. As of November 1, US butadiene stocks stood at 159 million pounds, down from 217 million pounds September 1, according to Tucker Consulting Services, Dewey, Okla.

FALLING IMPORTS

Until this month, though, falling imports and stocks have not been able to stem the butadiene price slide. Prices have declined all year, falling from a January high of 26 cents per pound to 9 cents at present. Most of the slide took place in the first half, when falling crude oil values precipitated a large shift in US stream crackers to naphtha and gas oil feedstocks, thereby boosting butadiene output. Competitive pressures from imported material and domestic product kept pushing the price down through the Summer and Fall.

Current indications in the market, however, suggest the slide has bottomed out. Mr. Debreczeni says the fourth quarter contract price in Europe is still under negotiation, and producers apparently are refusing to allow further deterioration to contract selling prices. Hugh Pylant, of Houston-based Pace Consultants, says not much butadiene is currently available for exchanges, forcing consumers to buy, rather than borrow, product. Supplies have declined in the latter part of this year, he says, noting both the decrease in imports, and the growing prominance of propane as a feedstock, a natural gas liquid with a low butadiene/ethylene ratio.

In addition to a rise in propane cracking and a decline in gas oil cracking, US butadiene production has also declined due to C4 co-cracking at one or two US ethylene plants, and limited burning of butadiene for its fuel value, sources say. Furthermore, widespread C4 co-cracking in Europe has led not only to a decline in finished butadiene exports to the US, but also to a large decline in exports of crude C4 streams that are processed into butadiene in the US.

While the butadiene price may have reached bottom, several sources also note prices aren't likely to improve through the end of the year. The main factor here, sources say, is static-to-declining demand for the synthetic rubber product. Mr. Pylant says that while demand for styrene-butadiene latex and acrylonitrile-butadiene-styrene resin has increased this year, domestic styrene-butadiene rubber consumption has declined.

US styrene-butadiene rubber demand has been hurt in three ways this year, according to Mr. Debreczeni. First, tire imports to the US have increased by 5 percent, he estimates. Tire imports from Japan are on the rise, he says, even though the value of the yen has reached a post-war high against the dollar. In addition, low cost tires from Eastern Europe have also undercut US sales. Domestic SBR producers have also been hurt by high auto imports (which carry five tires), and rising rubber imports.

A further blow to butadiene demand has come from a six-week turnaround recently taken at Goodyear's large Besumont, Tex., polybutadiene facility.

Thus while butadiene supplies will be held in check, due to fewer imports, and increased domestic use of propane as a feedstock, demand will remain weak into 1987, and little hope is seen in the immediate future for firmer butadiene prices.

GLYCERINE — Production of crude glycerine, including synthetic, totalled 22.3 mil-

PRICES TRENDLINES

WEEK ENDING NOV. 14, 1986

CHANGES/UP
None

CHANGES/DOWN
None

ALIPHATICS INDEX

The Aliphatic Organics index reflects the prices of 20 representative materials in this sector and the quantity of each produced in 1985.

Nov. 14, 1986	222.80
Nov. 7, 1986	222.80
Oct. 17, 1986	222.80
Nov. 15, 1985	222.80

Chemical Prices Start on Page 52

ALIPHATIC ORGANIC IMPORTS: SEPTEMBER

BUREAU OF CENSUS FIGURES FOR THE KEY ALIPHATICS

		SEPTEMBER		AUGUST*	
		QUANTITY	$ VALUE*	QUANTITY	$ VALUE
Acetic acid	lbs.	90,197	19,379	9,829,272	1,299,616
Acetic anhydride	lbs.	—	—	1,453	6,730
Acetone	lbs.	37,998,312	4,297,981	12,032,279	1,792,120
Adipic acid	lbs.	36,966	22,752	1,162	3,090
Benzoic (industrial)	lbs.	3,174,181	987,903	2,493,220	902,024
Butanol	gals.	23,955,839	145,471,409	17,807,398	14,032,676
Butylamines	lbs.	141,124	38,779	96,199	99,423
Citric acid	lbs.	—	—	—	—
Cresylic acid	lbs.	13,245,906	2,361,921	46,807,076	8,427,736
Cumene	lbs.	1,133,408	195,595	1,315,410	295,996
Diethylenetetramine	lbs.	2,452,212	747,937	17,924	7,382
Lactic acid	lbs.	80,399	14,929	186,846	89,749
Methanol	gals.	1,234,474	908,949	970,977	898,982
Methylene chloride	lbs.	26,611,402	9,295,706	28,988,796	988,032
Methyl ethyl ketone	lbs.	3,967,900	617,918	2,613,950	496,233
2-Methyl-2-pyrrolidone	lbs.	3,339,536	612,901	6,467,972	983,423
Octanol	lbs.	93,810	19,922	35,637	46,854
Oxalic acid	lbs.	—	—	1,089,448	276,814
Pentaerythritol and di-PE	lbs.	1,186,923	270,748	1,5426,997	490,530
Perchloroethylene	lbs.	903,992	427,263	1,618,456	752,936
Propylene oxide	lbs.	10,984,916	1,354,787	8,724,454	1,350,917
Sorbic acid	lbs.	2,472,120	926,779	2,626,220	992,665
Tetraethyllead	lbs.	982,932	556,199	324,036	601,197
Trichloroethylene	lbs.	—	—	1,850,006	160,645
Vinyl acetate, unpolymerized	lbs.	1,978,008	276,465	1,126,590	167,643
Vinyl pyrrolidone	lbs.	193,367	97,948	183	1,699
Xylol	lbs.	131,704	119,993	185,969	845,600

*August value figures represent C.I.F. values; customs value plus freight insurance.

ALIPHATICS

lion pounds in September, according to Commerce Department. That represents a decrease of 2.9 million pounds from August and 2.5 million pounds from September 1985.

Producer stocks of crude and refined glycerine stood at 48.8 million pounds, up 10 million pounds from August, and up 22.4 million pounds from the September 1985 level.

Glycerine imports amounted to 8.8 million pounds in September, compared to 8.1 million pounds in August and 2.3 million pounds in September 1985.

At the end of September, cumulative imports were 47.8 million pounds, compared to 26.8 million pounds for the same period last year.

At 1.6 million pounds, exports in September were up from the August level of 1.3 million pounds, but down from the September 1985 level of 2.6 million pounds. Cumulative exports through September stand at 12.7 million pounds, much less than the 22.8 million pounds for the same period last year.

Total domestic disappearance of glycerine was 19.3 million pounds in September, down from the revised August total of 20.1 million pounds. Year-to-date domestic disappearance amounts to 264 million pounds through September, and increase over the 252-million-pound-level through September of last year.

MTBE — Rising toluene prices last week have contributed to a slight firming in methyl-tert butyl ether prices. The latest gallon surge in toluene prices last week shifted MTBE "from a weak 64c." (per gallon) to a strong 84c.," one producer says. Without the increase in toluene values, he explains, MTBE prices would have slipped. But now, he says, MTBE is in a strong position.

However, another octane enhancer, ethanol, continued its steep price decline in October. Fuel ethanol prices plunged 8c per gallon in October to a 72 cent per gallon average, according to Information Resources, Inc., a Washington-based marketing research firm. And this decline follows a 7c per gallon slide in September. IRI says. Fuel ethanol prices have now fallen from 87c per galloo to 79c., IRI says, blaming the decline on oversupply.

VINYL CHLORIDE MONOMER — Industry sources say a successful [illegible] mented polyvinyl chloride price increase this month is leading to price firming in the VCM market.

One producer says PVC prices will increase 1c. per pound this month, and integrated process VCM makers are realizing a two-cent-a-pound gain in selling values. This half-cent gain raises VCM market prices to 16½c. per pound. Furthermore, PVC producers are planning another price hike in December. If the PVC makers pass this increase on, sources say VCM prices are likely to further increase.

Demand for VCM in the US vinyl industry making the monomer scarce in the merchant market. One producer says shortages have cropped up in the export market, and one company has had to turn away domestic buyers in recent weeks.

Diagnostics Market

Continued from Page 9

manufacturers will only have a short time to capitalize on these changes.

"Once laboratory systems are established in physicians' offices, it will be difficult for competitors to displace them. In addition, manufacturers will find that the successful direct sales force approach which was successful in the highly concentrated hospital market will not be economically feasible in the more diffuse physicians' offices."

In the over-the-counter diagnostics market, US sales are likely to increase 21 percent a year, from $235 million in 1985 to $810 million in 1990.

"The reason for this," says Mr. Rosenbaum, "is the consumer's desire to save time and money, as well as ensure privacy and personal control over health management."

"The real opportunity in over-the-counter diagnostics exists for companies that are diversified and have both the ability to develop the products, and sell in consumer markets," he says.

"If you have the ability to market and sell products at the retail level, the technological ability can be acquired. The success factor will be the ability to stimulate and supply demand in the appropriate market segment. Companies that invest early in establishing brand loyalty will be well positioned to support new OTC product introductions," he notes.

While the market for clinical diagnostics remains competitive, and competition from abroad is intensifying, the A.D. Little analyst expects that some manufacturers will begin to consolidate in the next few years.

"Technology development is a primary basis for competition in this industry, and R&D is a major focus for participants because of both intense competition and increased customer demand for cost-effectiveness," Mr. Rosenbaum says.

Gas Pipelines' Market Share Under Study

Federal Energy Regulatory Commission says it will investigate to determine whether natural gas pipelines are using unregulated affiliates to dominate the market.

By a four-to-one vote, FERC asked for public comment on whether interstate pipelines are abusing their power in the wellhead market for gas. The commission has been attempting to open the market to all buyers and sellers.

Public comment will be due by Dec. 29, and any comments to reply would be due by January 28. A final vote will be taken on a finished order drafted by the FERC staff.

The commission also voted 4-1 to stop proceedings by an administrative law judge on a complaint by Champlin Petroleum, an affiliate of the Unioo Pacific Railroad. Champlin Petroleum has charged that Tenngasco, a marketing divisloo of Tenneco Corp.'s Tennessee Gas Transmission Company, could receive unfair advantages in shipping gas.

Charles Trabant, the dissenter in both votes, said be feared FERC would not be able to act before July, and by then marketing affiliates "can be expected to increasingly dominate natural gas transportation and, unless I'm wrong and I hope I am, exercise unregulated monopoly power."

The pipelines had monopoly power until October 1985, when FERC, prodded by a Federal court order, gave pipelines the option of becoming pure transportation companies rather than gas wholesalers.

A pipeline operating under the open access option simply carries gas. The pipelines' customers, local distribution companies regulated by the atales and large industries, buy gas from the operator and have it shipped to the burner. Most of the nation's gas is moved in this manner, compared with only a small percentage just over one year ago. Most of that is shipped by new pipeline marketing affiliates who buy gas and resell it. Some gas is shipped by customers, while some is shipped by more than 80 independent brokers.

Mr. Trabandt proposed an emergency regulation to prevent pipelines from giving their affiliates discounts on shipping charges and require all gas shipped by marketing affiliates to come under price controls.

Chemicals Act As Flavor Code

Orange juice has a "flavor code" of chemicals that a U.S. Department of Agriculture scientist has broken for the first time.

USDA's Manuel G. Moshonas has identified what he says are the 21 major chemicals that contribute heavily to fresh orange juice's distinctive flavor. That natural blend of chemicals is altered when the juice is stored or processed, he said.

"We found that the 21 chemicals act as a flavor code that will help the citrus industry make processed juice that tastes like it's just been squeezed from an orange," he said.

"We're closing in on nature's way of making orange juice," said Mr. Moshonas, a chemist with USDA's Agricultural Research Service in Winter Haven, Fla. He said he plans to see if he can detect the flavor ingredients in other juices such as apple, pineapple and grape.

All 21 flavor chemicals were identified in orange juice known in the industry as "single strength," which includes juice that is fresh squeezed, juice that is pasteurized and packaged in cartons or bottles, and juice concentrate to which flavor ingredients and water are added.

What happens is that processors alter a chemical blend because when they make concentrate, they remove water and some of the flavor chemicals from the juice. Some of the flavor chemicals from the juice. Some of the juice water, called "essence," is added back along with other ingredients, partially restoring the flavor.

Still, the reconstituted jutce does not have the same flavor it had when it came out of the orange, says Mr. Moshonas, who is based at the agency's Citrus and Subtropical Products Laboratory.

Until now, scientists had not been able to break the flavor code because the chemicals are in low concentrations, and the water and other components of the juice — sugars and acids, for example — make it hard for most instruments to measure the flavor ingredients.

Mr. Moshonas used a gas chromatograph to compare fresh juice with concentrate and to determine which flavor components have changed. He said the citrus industry is interested in his research and that the chromatograph, which costs between $5,000 and $8,000, would be economically feasible for the industry.

He also used low pressure and temperature to distill, or separate, the water and flavor components in juice from the solids dissolved in the juice. Once that was accomplished, he could then analyze the flavor by using the gas chromatograph, which "separates and measures these ingredients so we get a picture of them and how they interact," he said.

About 90 percent of the 200 million boxes of oranges produced in the US each year are converted to processed products with a retail value of more than $3 billion, according to May 1988 figures from the Florida Department of Citrus.

Vista Selling Shares

Continued from Page 9

through a management-led leveraged buyout, was initially capitalized with about 90 percent debt and 10 percent equity.

Most of the equity portion of the capital — again about 90 percent — was initially in the hands of the financial backers including Hutton, while the managers held about 10 percent.

The company's strategic plan was to pay back the debt rapidly, achieving a more normal 50 percent debt-capitalization ratio in five years or less. In an interview last year, company president John Burns said that when the debt is substantially paid down, Vista will either re-leverage itself, go public, be acquired or make a substantial acquisition of its own.

Two Hike Sorbates Price Following Increases by Mitsui

Two companies have announced price increases for sorbates, effective December 1.

Both Kanematsu-Goaho, distributor for Ueno Fine Chemicals, Inc.; and Toyomenka (America) Inc., are raising their list prices for potassium sorbate and sorbic acid. Each company will be charging $2.60 per pound for 20,000-pound or larger quantities, $2.60 per pound for between 10,000 and 19,900 pounds, and $2.70 per pound for between 3,900 and 9,900 pounds. Their prices differ slightly for lower quantities.

These announcements come on the heels of an announcement made by Mitsui & Company (CMR, 11/10/86, pg. 21). Mitsui's changes are similar, and also take effect December 1.

In most cases, prices are rising by 30 cents per pound. Much of the US sorbates supply is imported from Japan and Germany, and currency rates are being cited as the primary reason for the hikes. The three companies which have announced increases thus far sell Japanese material.

The industry still awaits the decision of other important players, namely the domestic producer Monsanto Company and the importer American Hoechst.

MONSANTO MULLS MARKET

A Monsanto spokesman says his company is evaluating market conditions, and will soon decide whether it will raise its prices also. An American Hoechst spokesman comments, "Present pricing for (sorbates) is unsatisfactory."

One company spokesman thinks that, in order for the price increase to hold, both Monsanto and American Hoechst have to raise their prices. "If they don't," he says, "we can't."

Another player, however, says that the price increase should hold even if the two companies do not follow suit, because of the strong need for higher prices.

Prices have been depressed, say sources, because of oversupply. One source estimates world capacity at 60 million pounds, but says that no more than 40 to 50 million pounds are being sold. Sources assert that Monsanto decreased its prices in early 1985 because of the oversupply, and say other suppliers were forced to follow.

Now, because of the currency situation, sources say profit levels are unacceptable. One source says, "We've had enough of the (price) war...We feel the pinch." Another source comments, "Price really fell last year ... Profit margins were low."

Reflecting the currency exchange situation, imports have fallen in 1986 for both potassium sorbate and sorbic acid. Particularly, imports from West Germany have fallen considerably. Presumably, the Japanese companies are so committed to the US market that currency exchange rates will not affect the flow of sorbates from Japan as much as demand shifts.

Through September 1986, about 2.8 million pounds of potassium sorbate entered the US, almost 22 percent less than the 4.9 million pounds coming here through September 1985. Material from Japan totalled 2.1 million pounds, about a 7 percent decrease. Material from West Germany, however, totalled 4 million pounds, more than 30 percent. It is that the amount coming here through September 1985. Belgium sends a relatively small amount of potassium sorbate to the US, and that amount nosedived by 56 percent to 42,000 pounds, through September.

Overall sorbic acid imports are down about 7 percent (3.8 million pounds versus 4 million pounds). Japan's shipments to the US through September remained stable at about 3.3 million pounds. West German exports here were 457,000 pounds, a decrease of 47 percent from last year. Mainland China sent 79,000 pounds to the US through September. Last year it sent nothing.

US demand for sorbates is estimated at 8 million pounds by one source. Others say the total is slightly lower. Growth is between 3 and 5 percent annually. One source mentions good sales of semi-moist pet foods as a demand booster.

Several sources agree that the industry will have to wait until mid- or late-January in order to assess the effects of the price increases, and to determine whether more increases will be necessary.

GUAR GUM — Indiso Gum Industries Limited, of Bombay, India, has appointed Commodity Services International, Inc., as its exclusive sales, marketing and distribution agent for guar gum and its derivatives in the US. Commodity Services International is located in Easton, Md.

Indian Gum Industries is said to be the largest producer of guar gum products in India, with manufacturing facilities in Bombay, Ahmedabad and Jodhpur. The company says its annual production of these products is more than 12,000 metric tons. Indian Gum Industries is affiliated with Hercules Incorporated.

Guar gum supplies have dwindled this year, because of last Fall's poor crop in India and Pakistan, the world's largest producers. This season's crop will not see any improvements, according to a supplier.

Guar gum's crop is beginning to peak about now. Estimates of the crop's potential range from 41,000 tons to 66,600 tons, far below the average crop of about 137,000 tons. Last year's crop yielded 86,000 tons, so at best this year's crop would equal that total.

The only factor preventing a catastrophic shortage, the supplier says, is the "unbelievable petroleum disaster, (CMR, 8/11/86, pg. 15)." He claims that the past year has seen the petroleum industry's great demand plummet to 600 metric tons, from 4,500 metric tons.

VITAMIN B-6 — A recently completed study by USDA Agricultural Research Service and Columbia University scientists indicates that vitamin B-6 helps ease some symptoms of bronchial asthma. For example, B-6 is now thought to help control shortness of breath.

Dr. Robert D. Reynolds, a chemist for ARS who was involved in the research, says that during the two-year study, 15 asthma patients were given 100-milligram doses of vitamin B-6 daily. He claims that initial results show a relationship between low levels of vitamin B-6 and asthma, and that all involved in the study have experienced fewer and less severe asthma attacks.

Dr. Reynolds cautions that 1.5 to 2 milligrams per day of vitamin B-6 is the normal intake, and that excessively high doses can cause serious nerve damage.

Meanwhile, the vitamin's price has recently been increased by several major companies (CMR, 11/10/86, pg. 21).

BRUCINE SULFATE — Reportedly, the Indian government is considering raising the price floor of brucine sulfate.

The current price floor of the Indian import is $2 per ounce, f.o.b. Indian ports. The floor was established to encourage farmers to grow the nux vomica plant, from which brucine sulfate is extracted. Before the floor, farmers complained about high production costs.

Now, the floor may be raised again for similar reasons. An importer of the product says that talks have taken place recently, but adds that no change has been made. In the meantime, the importer claims that some suppliers have been squeezed out of the market because of low returns.

The selling price of brucine sulfate is between $2.25 and $2.30 per ounce, for large quantities. US demand is estimated at about 400,000 ounces a year, and is said to constitute the bulk of world demand.

PRICES TRENDLINES

WEEK ENDING NOV. 14, 1986

CHANGES/UP
None

CHANGES/DOWN
None

DRUGS INDEX

The Drugs & Fine Chemicals Index reflects the prices of 10 representative materials in this sector and the quantity of each produced in 1985.

Nov. 14, 1986	211.1
Nov. 7, 1986	211.1
Oct. 17, 1986	211.1
Nov. 14, 1985	211.1

Chemical Prices Sieri on Page 82

DRUG & FINE CHEMICAL EXPORTS: SEPTEMBER

BUREAU OF CENSUS FIGURES ON THE KEY DRUGS.

	SEPTEMBER QUANTITY	SEPTEMBER $ VALUE	AUGUST QUANTITY	AUGUST $ VALUE
Antibiotics:				
Ampicillin and salts, bulk ... gms.	5,541	747,896	238,865	2,861,5
Erythromycin ... gms.	66,790	8,098,974	73,169	7,162,0
Penicillin HSPF ... blu.	7,374,186	1,219,834	1,899,135	3,497,1
Penicillins, G Salts, Bulk ... blu.	143,243	2,886,021	84,331	1,542,7
Tetracycline ... gms.	1,238	1,485,411	2,966	276,8
Aspirin ... gms.	274,006	385,182	234,615	210,4
Caffeine and deriv. ... lbs.	35,300	130,805	84,062	307,7
Citric acid ... lbs.	866,998	827,655	436,866	201,2
Opium alkaloids and deriv. ... lbs.	592	89,329	2,975	
Hormones:				
Corticosteroids, nspf ... lbs.	6,112	6,485,273	10,464	8,667,8
Nonsteroid hormones ... lbs.	15,852	1,203,298	8,429	1,939,8
Prednisolone and esters salts ... lbs.	3,342	4,131,290	4,908	6,472,0
Steroid hormones and synthetic ... lbs.	22,382	2,113,985	126,915	1,140,7
Sulfonamides, bulk ... lbs.	102,612	1,424,382	79,497	
Vitamins:				
Ascorbic Acid ... lbs.	194,884	866,493	91,156	345,8
Vitamin A and Pro-vitamin A, bulk ... lbs.	160,281	207,666	76,320	94,2
Vitamin B, (thiamine) ... lbs.	5,964	56,184	2,632	57,6
Vitamin B12 ... lbs.	1,054	25,834	4,164	666,6
Vitamin E ... lbs.	55,110	1,127,744	59,866	1,2
D and DI pantothenic acid ... lbs.	2,846	22,452	14,861	88,7
Niacin and niacinamide ... lbs.	46,935	149,546	20,249	116,7
Vitamins, nspf ... lbs.	385,096	867,266	232,986	

Insects Pests Targetted

Continued from Page 9

nals in that part of the insect's brain which controls the release of needed hormones from the insect's glands.

Methoprene stops an insect's maturation process in mid-stride and prevents it from propagating. Again, methoprene disrupts the insect's specific hormonal system.

The action of both chemicals is fundamentally different from conventional insecticides because death results from more subtle actions on behavior or development.

Dr. Adams explains how the insect brain works: "In insects, the brain is a central command post which programs developmental, reproductive, metabolic and behavioral states at the appropriate times throughout the body. The brain does this by issuing chemical messages called neurohormones from specific nerve cells, which, in turn, orchestrate the precisely timed liberation of blood-borne hormones from glands."

The activities controlled by these hormones—such as changing from larvae to an adult form—are unique to insects.

"By focusing on insect-specific neurohormones, Dr. Adams says, "it is hoped the problems of general toxicity to non-target organisms will be avoided."

Today's conventional crop protection insecticides are neurotoxins, Dr. Adams says, and these are designed to upset the delicate regulation of neurotransmitters within the brain.

"Unfortunately," he says, "they are general toxins affecting brain chemicals common also to non-target organisms, hence the high risk associated with their use."

While recent improvements in the design of conventional insecticides have lessened this risk, Dr. Adams says, the goal of future insecticide research is to focus on those aspects of insect life that are unique to insects. This would increase the margin of safety for non-target animals.

But getting mind-tinkering chemicals into the insects can be a problem, says Dr. Adams. Their tough outer shells pose a formidable barrier for some promising insecticides to penetrate.

Dr. Adams says one solution would be to have a disease-causing agent deliver the pesticide. The agent would attack only insects, and would deliver a neurohormone at just the wrong time in an insect's life cycle—for instance, interrupting an insect's molting process at its most vulnerable stage, when its new outer shell has not yet hardened.

Dr.. Adams says both bacterial and viral disease-causing agents, pathogens, already are being used with some success in insect control.

Con the genetic codes of such pathogens is altered to enable them to produce neurohormones inside the insect at disruptive times? The technology exists, Dr. Adams says.

German Chemicals

Continued from Page 5

will be making an important contribution to the growth of the overall economy.

He sees some clouds on the horizon, however, notably in the US, which has not been economically stimulated by the decline of the dollar. Among other problems, he cites the massive budget deficit.

"Also, the economic situation of Japan is especially insecure today," he says. Negative influences on exports and weak overall investment level are strengthening recessive tendencies in that country, he warns.

It's true that West Europe is not as directly affected by US economic weakness and the devaluation of the dollar as Japan, "but as

German Chemical Output*

	January-August 1985	1986	% Ch
Chlorine	2,372,623	2,321,598	-2.1
Sulfuric Acid (SO_3)	2,309,838	2,252,425	-2.5
Ammonia	1,306,278	1,135,829	-13.1
Ethylene	2,125,015	1,828,575	-13.9
Methanol	384,348	321,963	-16.2
Nitrogen Fertilizers (N)	780,575	695,822	-10.9
Phosphate Fertilizers (P_2O_5)	326,893	256,526	-21.5
Fungicides, Herbicide	112,752	111,985	-0.7
Polyethylene	860,525	865,192	+0.5
Polyvinylchloride	812,636	825,917	+1.6
Paint Material, lacquers Thinners	902,874	895,033	-0.9
Pharmaceuticals	10,515,545**	10,286,187	-2.2

Source: Verband der Chemischem Industry
*Figures are tons except where indicated otherwise
**1,000 DM.

strongly export-oriented" an industry as German chemicals "can't look unaffected the impact on the growth of the world economy."

In other remarks to the VCI press confe Dr. Albers expressed concern over the rising chorus of environmentalist calls Germany for more regulation of the chemical industry and the need to reduce business taxes in line with those on other major trading partners. He sees a "long-term danger, if current business taxes go beyond today's level at 70 percent of profits or higher.

EDB Ban Poses

Continued from Page 7

ban further shipments. A Federal court in Kansas on November 5 approved an arrangement allowing EPA to store the rest of Vulcan's inventory until a recycling system becomes operational next September.

As a result of the problem at Velsicol's warehouse, Mr. Campt said the agency is advising all EDB holders to inspect their drums for leaks.

But documents released at the hearing by Rep. Mike Synar (D-Okla.), subcommittee chairman, indicated that EPA was aware corroded or leaking drums as far back as 1984 at warehouses in three other states.

EPA officials now estimate that as much as 50 percent of the remaining stocks of EDB may have leaked.

Waste Cleanup: Labor Seeking An Interim Rule

Occupational Safety & Health Administration should issue a comprehensive interim standard to protect all workers involved in hazardous waste cleanup operations, organized labor said last week.

The superfund reauthorization bill signed into law by President Reagan October 17, requires OSHA to issue an interim rule by December 17 and a final rule within a year.

OSHA says it will issue the interim rule by the mandated deadline and simultaneously issued a proposed final rule, which will be subject to public comment.

AFL-CIO safety specialist Margaret Seminario calls passage of the superfund bill a "real victory for the labor movement" and says organized labor is "glad to see OSHA moving forward on this."

She emphasizes however that workers need a "comprehensive rule that protects all workers in hazardous waste sites." Ms. Seminario notes that superfund is "very specific" about who should be covered.

"The intent of Congress is clear in the language and in previous testimony that all workers at hazardous waste operations be covered," she says. "This goes beyond just workers at the superfund cleanup sites. Some of the most hazardous sites for workers are at managed sites where waste chemicals are handled, processed or buried," Ms. Seminario adds.

She says OSHA's proposed standard should set specific exposure limits for the chemicals that workers may be exposed to in waste operations, using both short-term limits and permissible exposure levels averaged over a workday when both are needed.

"It will depend on the type of operation and the chemicals involved," she explains.

Superfund also authorized the National Institute of Environmental Health Sciences to fund university-based programs on health-effects research and on worker training.

Ms. Seminario says the NIEHS training program and the OSHA standard on toxic waste sites are interrelated, and adds she hopes the training programs developed are consistent with the OSHA requirements.

A key to the effectiveness of the NIEHS worker training program will be making sure Environmental Protection Agency earmarks the $10 million per year required to fund the operation, she says.

Borg-Warner's Unit

Continued from Page 9

the large amount of capital employed in the financial operation for growing other Borg-Warner businesses, according to Clarence E. Johnson, president and chief executive officer.

First Boston Corporation, which was retained by Borg-Warner in 1984 to advise it on restructuring, will assist in the sale of the financial operation, Mr. Johnson stated.

This is the second planned divestment announced by Borg-Warner within a month. On October 27, the company said it intends to sell its industrial products subsidiary, which had sales of $273 million in 1985.

Proceeds from both sales will be available for expanding other businesses, for acquiring companies that blend with the company's mainstream operations and for repurchasing its shares.

Supreme Court

Continued from Page 7

deformities in Katie Wella, including a deformed right hand, no left arm and partial development of her left shoulder.

The judge awarded her parents $5.1 million for medical expenaes, pain and suffering and lost wages. In May 1986, an appeals court upheld the judge's finding but reduced the award to $4.7 million.

Appealing to the high court, attorneys for the drug company said the trial judge and the appeals court used an improper standard for evaluating evidence in a scientific case. They said objective data fail to establish any clear link between spermicides and birth defects.

"With the exception of the plaintiffs' experts in this case, no scientist has ever publicly expressed the opinion that vaginal spermicides cause birth defects," the appeal said.

Opposing the appeal, lawyers for the child and her parents accused Ortho Pharmaceutical of seeking to "re-try the merits of its case." They said Ortho " has had its day in court" and lost after "a procedurally perfect trial."

Following a two-week trial in which both sides presented expert witnesses, Judge Shoob ruled in favor of Katie Wella' parents. He said they presented "competent and credible" medical evidence that showed "to a reasonable degree of certainty" the spermicide caused the defects and that the pharmaceutical company was negligent for not warning of the danger.

Thirteen studies were entered in evidence during the trial and two of them were singled out by the judge as demonstrating an association between spermicide and birth defects.

The case has prompted concern in the pharmaceutical industry and debate within the medical community over standards to be used by judges considering medical evidence.

Recently, Drs. James Mills and Duane Alexander of the National Institute of Child Health and Human Development said it demonstrates that lawsuits can be won with evidence rejected by the scientific community.

The pair, writing in the New England Journal of Medicine, said, the decision "lost the medical community by surprise because the overwhelming body of evidence indicates that spermicides are not" the cause of birth defects.

Water Act Veto Hit

Continued from Page 4

mously in favor of the bill, which would have extended terms of the Clean Water Act through 1994 by providing money for local sewage treatment and initiating programs to curb toxic chemical pollution.

Sen. Daniel Moynihan (D-N.Y.), said President Reagan's signature on the bill passed in the final days of the 99th Congress would have been seen as a "first gesture of cooperation" with the Democratic leadership of both chambers when the 100th Congress convenes in January.

Sen. Edward Kennedy (D-Mass.), was more blunt. "The President's veto of the clean water bill was an irresponsible act. We will not allow these projects to be delayed for long," Sen. Kennedy warned. "We will be back next year and we intend to prevail with a similar bill."

President Reagan promised to work with the new Congress in addressing such concerns, saying the bill he vetoed would have authorized certain new programs for $18 billion "that my administration has opposed."

Among them, he said, is "reinstatement of a Federal assistance program to pay for local plans to control diffuse sources of pollution."

President Reagan, who reported "remarkable progress in the massive national cleanup effort," said the bill's $18 billion pricetag was triple the amount he requested.

The chemical industry regarded the legislation as an acceptable compromise and urged the President to sign it into law.

Biotech Center Is on the Way

Officials last week broke ground for the nation's first biotechnology research center at Rockville, Md.

Construction for the Center for Advanced Research in Biotechnology in Rockville formally began with ceremonies involving representatives of the major participating institutions. The center — established by the University of Maryland, the Department of Commerce's National Bureau of Standards and Montgomery County, Md. — will be located at the county's Shady Grove Life Sciences Center. Biotechnology companies are expected to join in CARB's research, a spokesman said.

"This center represents a unique national resource in an especially important scientific field that will also strengthen the biotechnology-related programs of NBG and our university," said John S. Toll, president of the University of Maryland, in ceremonies at NBS to celebrate the groundbreaking.

Associate deputy secretary of commerce Mark Policinski emphasized the economic importance of biotechnology. "The more than 400 biotechnology firms which have emerged over the past few years attest to the promise this field holds," he said. "But we must continue our strong research support for biotechnology and find better ways to transfer research advances to the many small and large firms which make up this new industry," he said.

Ernest Ambler, director of the National Bureau of Standards, stressed the mutual benefit expected from CARB. "This nation must increasingly turn its attention to cooperative ventures like CARB in order to make the most of our national investment in research and development," he said. NBS, the Federal government's science and engineering measurement laboratory, provides industry and science with physical and chemical measurement methods, data, and standards.

First announced in 1984, CARB now is putting together multidisciplinary teams of scientists and engineers with state-of-the-art facilities, according to Kevin M. Ulmer, director of the center. The organization has been housed at NBS, where researchers from the bureau and the University of Maryland have undertaken several research projects taking advantage of specialized NBS laboratories.

When the new CARB building is ready in December 1987, it is expected to accomodate 100 researchers. Between 85 and 90 scientists from NBS and the University of Maryland will work at the new site. The remainder of the 100 researchers working at the center will be guest scientists and engineers from industry, other universities, and government agencies. Up to one-third of CARB's research staff will be visiting industrial fellows. Both cooperative and proprietary research will be possible at CARB.

The initial 40,000 square-foot complex under construction "will be the world's finest facility for the determination and analysis of the structure of macromolecules," Mr. Ulmer said. "Our goal is to radically reduce the time and effort required to determine the atomic structure of proteins and to model and predict their properties," he said.

Fertilizer Shipments

Continued from Page 5

solid urea remained unchanged from last year.

Ammonium sulfate exports advanced 135 percent for the period, followed by ammonium nitrate with a 12-percent rise. Anhydrous ammonia and urea exports were off 28 percent and 39 percent, respectively.

Processed phosphate disappearance declined 4 percent in September compared to September 1985, but rose 3 percent for the three-month comparison. Superphosphoric acid disappearance for the same period was off 34 percent and concentrated superphosphate shipments fell 16 percent, while monoammonium phosphate disappearance rose 25 percent.

Production for the month was up 7 percent compared to September 1985 but off 7 percent for the period. Year-to-date figures show that production dropped for all phosphate products except normal superphosphate, which remained unchanged from 1985 levels.

Ending inventories for processed phosphates were down 4 percent, due to declines in stocks of superphosphoric acid, normal super phosphate, monoammonium phosphate, and diammonium phosphate. Wet process phosphoric acid stocks rose 29 percent.

Phosphate exports posted increases of 9 percent for phosphoric acid, 20 for normal superphosphate, 11 percent for concentrated super and 1 percent for DAP. Phosphate rock and monoammonium phosphate exports were off by 30 percent and 23 percent, respectively.

Domestic disappearance of potash products rose 5 percent for September but fell 6 percent for the three-month comparison. Granular muriate disappearance jumped 19 percent compared to September 1985 and 11 percent for the year to date. Standard muriate shipments were down 8 percent and coarse muriate down 17 percent relative to the same period a year ago.

Production for the year to date rose 11 percent compared to last year, led by granular muriate's rise of 53 percent.

Monoclonals

Continued from Page 7

dipstick diagnosis of disease. In this process, plastic sticks would be coated with monoclonal antibodies, dipped in the body fluids of a stricken animal, then rinsed in a series of short baths. The cause or causes of the problem would be pinpointed by characteristic color changes on the dipstick.

Eventually, this kind of testing could provide information about the level of contamination of feed with mycotoxins or pesticides. It could define whether potentially harmful drug residues, antibiotics or carcinogens have contaminated milk, meat or poultry products.

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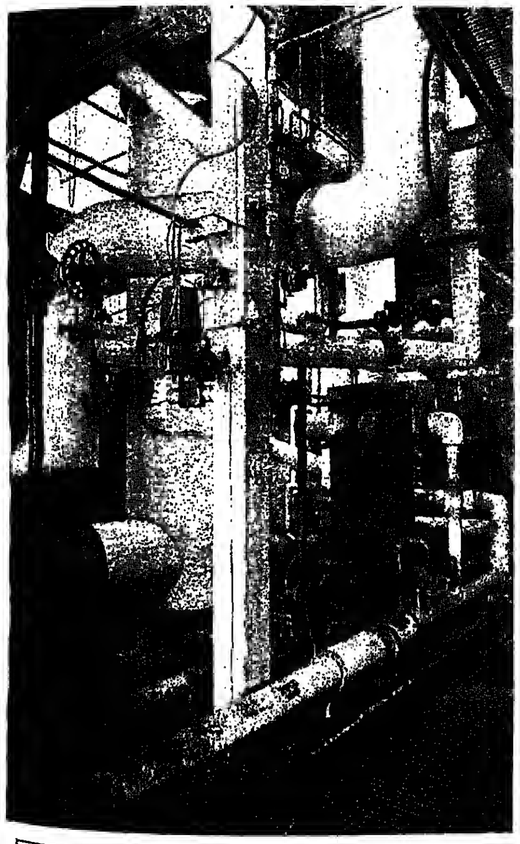
WASTE MANAGEMENT '86

Waste Reduction Coming to the Forefront



Industry and government leaders agree that more attention needs to be focused on waste reduction at source. As part of its waste reduction program, 3m uses a vapor compression evaporation system, shown at left, at its "Chemolite" plant to recover ammonia from its waste stream. The ammonia solution recovered is sold as fertilizer, generating annual revenue, while preventing the discharge of 577 tons of pollutants annually.

Reducing Waste Output at Source Is Viewed as an Industry Priority, But a Systematic Approach Is Needed

By AGNES SHANLEY

The cost of enforcing and complying with current hazardous waste legislation is forcing both the US government and the chemical industry to take a closer look at waste reduction at source, the most fundamental approach to waste management.

This response to the problem of hazardous waste disposal allows companies to meet environmental pressures and satisfy stricter Federal and state requirements while substantially lowering long-term costs.

Although environmentalists, government agencies and industry leaders have all voiced unanimous support for this approach, many feel that the US chemical industry has yet to put any systematic approach into action. A major obstacle, they say, is current environmental legislation, which centers on waste handling and treatment rather than reduction, diverting corporate attention and capital from developing innovative approaches to waste reduction.

ONLY STOPGAP SOLUTIONS

The Congressional Office of Technology Assessment (OTA) in its report, "Serious Reduction of Hazardous Waste", estimates that 99 percent of almost $70 billion spent annually by Federal and state governments goes into controlling the aftereffects of waste generation. The options which chemical companies most often resort to—waste processing, recycling, and incineration—sometimes represent only stopgap solutions to the waste disposal problem, where one form of waste is exchanged for another, often at considerable cost.

Inform, a non-profit environmental research group, says preventative measures are often the option of last choice, implemented only after regulatory and operational pressures force management's hand.

Both OTA and Environmental Protection Agency have recently expressed strong support for developing a widespread strategy for waste reduction at source. EPA estimates that at least one-third of the 1.4 billion tons of hazardous waste generated by American industry could be eliminated if a more systematic approach to prevention were adopted throughout industry.

EPA's plan calls for the development of a national database on hazardous waste reduction techniques and an industry education program where companies would receive technical assistance to help them realize waste reduction goals.

Similarly, OTA has advocated waste reduction legislation, and the establish-

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WASTE REDUCTION

ment of detailed corporate reporting procedures, grants and incsntive programs, and a national voluntary goal of 10 percent hazardous waste reduction per year.

Many of the major chemical companies have developed or are developing management strstegies which focus on reducing waste at source, recycling or reclaiming what cannot he eliminated, and using incineration for most of the bstance. This new approach involves using outside waste management firms for less than 5 percent of the total waste volume, with a minimal dependence on landfill and underground injection storage.

Chemicsl Manufacturers Associalion's latest hazardous waste survey indicates that progress in reducing wasle has been made. Comparing resulls from the 324 plants which responded lo the survey each year from 1981 to 1984, overall waste generation fell 18 percent over that period, with landfill disposal down 35 percent; the amount of NPDES-treated wastewater fell 19 psrcent, while locineration increased f3.3 percent.

With three more plants contributing to the 1984 survey, results showed the total amount of hazardous waste fell 8 percent from 1983 to 1984; treated wastewater generation fell 27 percent over the aame period, and NPDES-treated wstewater fell about 10 percent.

Survey results, while an indication of the overall industry trend, are still not conclusive; there is an insdequate amount of dsta available.Since chemical companies are still not required to keep track of the total amount of hazsrdous waste generated in its three major forms, and msny view their waste reduction practices as proprietary, the actual degree of waste generated and the success of waste reduction efforts cannot be definitively determined. Government records, reflecting the focus on waste treatment,are alao incomplete.

In its study, "Cutting Chemical Waste", Inform chose 29 organic chemical plants in California, New Jersey and Ohio, the top hazardous waste-producing states, to analyze the effects of Federal and atate laws on waste reductioo.

The group found that waste reduction was implemented at only 12 of the 20 study plants. More than half of the 29 companies, among them the largest producers, elected not to participate in the study. Inform found that at 9 of these 12 plants, waste reductio was considered only after regulatory deed line pressures forced a change.

The group points out that, in addition to a general focuson waste treatment, legislative loopholes have been keeping producers fro adopting full-scale waste reduction tec niques. The most prominent of these is deep well injection, which is still legal in many statcs. Now that landfilling has been all but ruled out, it remains the cheapest form of available disposal. CMA's survey bears witness to the fact thst deep well injection, which fell 5 percent through 1980 to 1981, increased 5 percent between 1983 and 1984.

Another loophole is the Clean Air Act, which exempts supplementary burning of wastes as secondary fuel sources from the scrutiny applied to incineration.

Whatever one's view of the progress made in waste reduction, there is broad agreement that lack of sufficient data impedes accurate assessment. As the spokesman for a major chemical company says, "There's lots of waste minimization going on out there, often in the name of quality or yield improvement. We just lack the data to prove it."

WASTE REDUCTION TECHNIQUES

Sometimes, the waste reduction techniques are discovered as byproducts of new product development, and are adopted by the industry. Continuous batch polystyrene, low-pressure polyethylene and chloride [illegible] processing are examples of new technologies all resulting in substantial waste reductions which have replaced earlier processing methods used by the US chemical industry.

More often, approaches to waste reduction must be worked out individually, based on specific plant strategies and practices. Incrementary improvements, designed to better product yield or quality, msy have a positive impact on waste generation, and are typically a company's first step lo waste reduction.

Dr. Russell Susag, director of environmental regulatory affairs for 3M, describes a simple change in instrumentation in the firm's Oregon plant: computer-controlled temperature monitors were installed to improve yield and quality of a heat-sensitive material. An expenditure of $16,000 saved $533,200 per year, and eliminated 137 tons of solid and 53 tons of air emissions per year.

Other initial steps include improving process control and instrumentation, and implementing operator training programs to avoid spills. Union Carbide Corporation says it has been able to significantly reduce waste emitted in the form of air pollution this year as a result of improved instrumentation and monitoring. The company plans to reduce both continuous and episodic emissions by 5 percent per year over a three-year period. Robert T. Jackson, director of environmental affairs for the company's Chemicals & Plastics Division, reports that Carbide has already met or exceeded its goal this year.

Inform has isolated major categories of waste reduction techniques: manufacturing operational and equipment changes, product reformulation, and chemical substitution.

Processing, reformulation and substitution changes require time to implement. Those companies which have shown the most dramatic reduction in waste generation are those which established programs in the 1970's, when environmental pressures began to mount, and the energy crisis forced management to look at new ways of optimizing process and utilizing raw materials.

3M's waste reduction strategy, in place for the past 11 years, might serve as an industry model. Its "3P", or "Pollution Prevention Pays" program, attacks waste at all sources. Dr. Susag reports that, since its inception, the 3P program has brought about a 40 to 50 percent reduction in the amount of overall hazardous waste generated.

By the end of 1985, he estimates, the firm had reduced air emissions by 100,000 tons, water pollutant discharges by 11,000 tons, wastewater streams by 7.5 billion gallons, solid waste by 250,000 tons, and RCRA hazardous solid waste by 78,000 tons. These figures are based on conservative estimates.

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Clean Sites' Mission Now Well Under Way

By STEPHEN KEARNEY

Clean Sites, Inc., the independent, nonprofit corporation established in May 1984 to facilitate the cleanup of abandoned hazardous waste sites, is currently involved in about 45 sites throughout the country, and has made contributions towards the settling of a cleanup at about 20 sites.

CSI president Charles Powers says that "much of the original mission is well underway. We have helped responsible parties and EPA develop models." He adds, "We have become more central to the settlement process than we could have ever hoped."

Lee Thomas, Environmental Protection Agency Administrator, commented this year that Clean Sites "has facilitated very positively the process of cleaning up hazardous waste sites."

CSI in July completed its first project, a $6.5 million cleanup of a PCB-contaminated site involving two warehouses and 11 trailers in Greensboro, N.C. The organization assisted in bringing about the settlement at the site and managed the cleanup (CMR, 7/7/86, p. 3).

In June, CSI was involved in the achievement of a settlement at a portion of a defunct waste disposal facility in Oswego, N.Y. The agreement between 38 companies and the EPA resulted in a $900,000 interim cleanup of the Clothier "satellite" site, where the potential for drum leakage had been discovered. A similar agreement was reached recently at Fulton, another satellite of the Oswego area site.

In Motco, Tex., CSI undertook a technical assessment that is expected to contribute to a settlement by year's end. A notable aspect of this site involves the role of superfund money to cover a portion of the cleanup costs as an inducement for responsible parties to settle. Under this mixed funding program, EPA can sue potentially responsible parties that do not settle to cover the superfund share.

CSI is involved in the early stages of work at a Holden Mo., PCB waste site. Working with a subcontractor, Joan Ebzery a Clean Sites spokeswoman, says, "we already have secured the site, built a fence, drained some pits, and done preliminary sampling." To promote positive relations with the city, Clean Sites held a meeting with the mayor of Holden and some 50 concerned community members. The organization is reviewing documents that should enable it to determine the site's contributors.

Members of CSI's technical staff frequently are engaged in preparing and reviewing remedial investigation and feasibility study papers (RI/FS) that are generally required for Superfund sites. These studies analyze the extent of contamination, the effects on air and water, the dangers posed to health and environment, and the effectiveness and costs of various cleanup options.

For instance, Clean Sites has assisted in the preparation and validation of an RI/FS for a site in Connecticut. The organization says that its technical review broke an impasse at the site, enabling the potentially responsible party to reach an agreement with the Connecticut Department of Environmental Protection that resulted in a limited surface cleanup of the site.

At an Elkton, Md., location, Clean Sites built a data base holding more than 8,000 receipts and manifests used for quantifying wastes sent to the site and allocating costs. CSI helped responsible parties and EPA agree to prepare a revised RI/FS at the site, and played a role in the parties' reaching an agreement on carrying out an initial cleanup phase.

CSI points out that it has the capability to help parties execute all phases of cleaning a hazardous waste site: technical evaluation, cleanup cost allocation, negotiations leading to a settlement, and the actual cleanup itself.

Miss Ebzary says that "most of our work is focused on bringing parties together, and on helping them to allocate cleanup costs among themselves and come to an agreement with whatever government they are dealing with."

While Clean Sites may be asked to get involved in just one aspect of a cleanup situation, the organization believes that sites can be cleaned faster when most or all of the stages in the cleanup process are integrated.

At the Greensboro, N.C. PCB site, CSI drew up a cleanup plan and solicited bids for the work while negotiations toward a final settlement were in progress. This was made possible by an interim agreement on the allocation of cleanup costs among 15 responsible parties. The final settlement was simpler to reach once the selection of a contractor made the cleanup cost a known factor, CSI asserts.

In order to promote an integrated approach to waste cleanup, Clean Sites sends at least one person from each of its three main divisions — settlement facilitation, technical review and compliance and project management — to each site.

Clean Sites believes that its position as a neutral, non-profit participant better enables it to help remove obstacles in the cleanup process. The organization can deal with concerned parties in joint negotiations and individually to work at moving them toward a common ground.

CSI generally uses two-person teams in the settlement process, one of whom typically has a legal background while the other has a managerial or technical background. Often, one has private sector experience and the other is from the public sector. Approximately 40 percent of Clean Sites' professional staff comes from the private sector, while 35 percent is from the public sector and 25 percent has experience in both areas.

At the Clothiers, N.Y., site, the organization assisted in the allocation of costs and in settlement negotiations. EPA in this instance set aside a portion of the cleanup costs for non-settling parties to be responsible for, and issued a unilateral order under the standard of joint and several liability to each wastehauling party, with the potential for treble damages if they failed to conduct the work. Within 30 days of EPA's announcement, the number of parties willing to settle was approximately doubled, and an emergency cleanup was able to proceed.

"At the very outset, a portion was designated for the recalcitrants," observes Clean Sites' Ebzery, and this contributed to "a very high percentage of participation" by potentially responsible parties.

With sites such as Clothiers, CSI believes it is helping to establish models for saving valuable time and resources and protecting the environment from further harm. Pointing to the quick Greensboro, N.C., cleanup, CSI's Powers says that it is possible to save "astounding amounts of money on transaction costs, litigation and pre-litigation posturing."

Parties often "feel they'll be in a ten- or fifteen-year morass," Mr. Powers continues, "but if they can sense a light at the end of the tunnel, this allows them to go ahead and make a commitment. The government does not need to get bogged down in litigation, and the community senses it is part of a solution."

CSI gets involved with a cleanup upon the request of a participant at the site. EPA, responsible parties, or concerned community leaders may contact Clean Sites. The organization receives three requests a week on the average, and has thus far assessed about 150 sites, 60 of them in depth.

Clean Sites says it is most likely to take work at a site where it believes its involvement will hasten the cleanup or where the situation could serve as a model for other cleanups. Some sites not listed on the National Priorities List (NPL) have been turned down, as have sites with no known responsible parties. Clean Sites has withdrawn from only one site in which it did become involved.

CSI's financial sustenance continues to come from corporate sponsors and private foundations. The organization is reimbursed by responsible parties for its work at non-NPL sites, but not at the major superfund NPL sites, where EPA is the indemnifier except for project management tasks.

Clean Sites aims to become more self-sustaining, says Miss Ebzery, and has asked EPA to revise its indemnification so that the organization can be reimbursed for its expenses in facilitating the allocation of costs among responsible parties. Long term, most resources must come from interested parties at a site while independence and neutrality are preserved, says CSI's Powers. Non-NPL sites are a testing ground for this, he adds.

In the months to come, Mr. Powers continues, CSI will continue to stress the importance of fairness and cooperation in expediting cleanups. "There is a very strong sense (among responsible parties) that they shouldn't pay more than their fair share." With an experienced staff and independent outlook, Clean Sites aims to ensure that equitable settlements are reached.

CLEAN SITES: Workers at the Holden, Mo., site sample for PCB contamination in a creek bed on the 13-acre property. Clean sites has been active in cleanup efforts there.

Incineration Capacity Is Facing a Shortfall

By MICHAEL McCOY

The viability of hezerdous wasie incineretion methods hes long since been demonsiraied. Now even its necessiiy is epparent end the consiruction of commerciel end private incinereiion feciiiies is beginning to proiiferaie. Some fear, however, thet regulaiory anarls will create a shortage of incinereiion capacity aa new regulations ben the iendfilling of hezerdous waste.

Interest in incineration as a waste disposal method intensified with passage two yeara ago of amendments to the Resource Conservation & Recovery Act. Among other things, the RCRA amendments require smoil waste generators to comply with the law. Most significnut, lsnd disposol will bc virtually banned under the RCRA amendments within another 3½ yeurs.

Based ou the effects of the RCRA amendments nnd additionni superfund wastes, EPA estimates that by 1990 demand for liquid organic wsste incineraiion will increase seven to eigbt times over commercial and private capacity now available.

As a result of RCRA, continuous waste generators are beginning to look for disposal methods other than landfilling. Says James Nicotri, manager for incineration systems at the Baltimore-based coosulting firm, Environmental Elements, "We saw a dramatic increase in the number of inquiries after November 1984, when tha government passed the RCRA amendments."

Interest in incineration is one thing, however, and obtaining a final RCRA "part B" permit to actually operate an incinerator, is another. According to EPA, out of 225 working incinerators in the country, only 35 have final permits. Out of the 225, 31 are considered off-site "commercial" incinerators, not connected with a particular waste generator.

According to Sucilen Pirages, director of the Inatitute of Chemical Waste Management (ICWM), an industry trade group, none of these has obtained final RCRA approval.

It is thia approval which is necessary before any new incineration facilities can be built. Dr. Pirages believes that a waste disposal capacity shortage is developing, and says that ICWM'a "biggest concern is to get the permitting process to operata more expeditously."

Bob Reincke, manager of public affairs at Chemical Waste Management Inc., a major waste disposal firm, is more blunt: "The net effect (of the current regulatory situation) is the potential for a significant shortfall in incineration capacity if new incinerators cannot be permitted and placed in operation."

Similar stumbling blocks exist for companies geared to the cleso-up of abandoned or inactive landfills. With tha exception of superfund sites, incineration companies pursuing this "mobile" claan-up markei must endura the same extensiva RCRA permitting process as required for permanent incinerators. Operators lament that the permitting process can taske much longar than the clean-up itself.

For auperfund sites, actual RCRA permits are not required, although RCRA emissions standards must be met.

Significant changes in tiie mobile incineration permitting process cannot be made until 1988 when RCRA comes up before Congress for reauthorization. An EPA official says the agency is now talking to industry to see whst its case is for a departure from the current site-by-sita permitting procedure.

Until then, he says "Wa're taking a look at possible changes under the current regulatory framework." One possibility is a sort of "generic permit" a state would isaue to a company for clean-up within the state. Every site would have to be listed, however, with specific corrective action conditions outlined for each. "This would provide some opportunity for streamlining," he says, but admittedly, "not as much as industry would like."

Despite the formidable challenge, disposal firms are forging ahead in tiie incineration business. The most tangible reason for their perseverance is financial reward. Harry Conger, President and CEO of Waste-Tech Inc. of Denver, Col., estimates the market for disposal of continuously generated waste was $1.5 billion in 1985, and predicts it will grow close to 25 percent annually for the next five years.

Considered by many to be a model for the industry is Chemical Waste Management Inc., which operates a commercial rotary kiln incinerator in East Chicago, Ill., and a fixed hearth incinerator in Sauget, Ill.

At present the company has obtsined permitting for and is expanding its Sauget operation; the second unit should be operating by year end, says CWM's Reincke.

In addiiion, the company has applied for permits to add incineration capacity at treatment centers in Emelle, Ala., and Port Arthur, Tex.

Another promising company is Waste-Tech, which offers on-site fluidized-bed incinerators to continuous waste generators through what it feels is a unique three step process.

Waste-Tech begins by analyzing a generator'a waste stream at its EPA permitted pilot incinerator in Golden, Col., says Mr. Conger.

Waste-Tech will next bring a demonstration unit to the company's plant location for a two or three month trial buro. Mr. Conger feels this atep makes Waste-Tech unique because the demonstration period proves to the customer the fluidized bed system's safety and reliability.

In addiiion, says Mr. Conger, the research development and demonstration permit required before operating the demo unit is like a short veraion of tha final "part B" permit.

The final atep for Waste-Tech is actual construction of the commercial unit. Here Waste-Tech offers four differot programs, ranging from one where Waste-Tech will own and operate the facility to one where the company involved will buy the incinerator and run it itself.

While Waste-Tech has been building gen-erat waste incineratora since the 1970's, the fact that none of its hazardous waste incinerators are yet in operation is not surprising. very few anywhere have come on line since 1980.

Mr. Conger says that so far, five major chemical or refining companies have run sample burns in Golden, Colo. Two of these are ready for the on-site demonstration phase; and for one, a chemical company on the Gulf Coast, construction on an actual cinerstion unit has begun, with start-u scheduled for mid-1987.

Another outfit enjoying success is Environmental Elements, which is the North American licensee of Von Roll Ltd., Swedish developer of a popular rotary kiln incinerator design. Environmental Elements is bullish based in that it works with both commercial and private concerns.

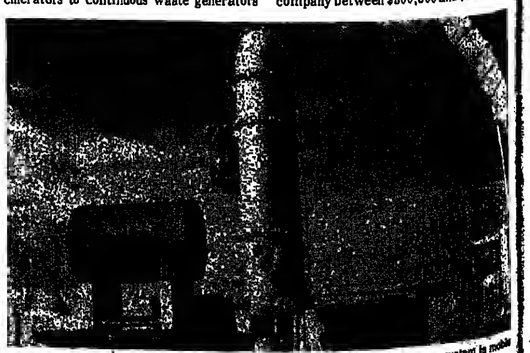
Among other projects, the company is involved with PPG Industries in Ohio in the construction of an incineration facility geared to PPG plants in that region of the counlry. Start-up here is slated for late Spring or early Summer 1987.

Environmental Elements is also working with a commercial operator, Waste Technology Inc., to build a treatment center in East Liverpool, Ohio. While preliminary EPA permits have been secured, actual design will begin early next year, with start-up about three years later.

Mr. Nicotri of Environmental Elements notes that the Von Roll design is used extensively in Europe, meeting emissions standards toughar than those in the US.

Both Waste-Tech and Environmental Elements will also assist clients in writing and defending permit applications. Permits at the Federal, state, and local levels are usually all necessary.

Mr. Congar of Waste-Tech says that the entire permitting process alone can cost a company between $500,000 and $1 million.



WASTE INCINERATION: Waste-Tech Services Inc.'s demonstration combustor system is mobile and can be shipped to a client's site on four flat bed trucks.

Underground Storage: Rules Set for Release

By RONALD BEGLEY

Early next year, Environmental Protection Agency is expected to issue proposed regulations addressing the problem of leaking underground storage tanks. While many of the details have yet to be worked out, EPA has already provided a pretty good idea of what the proposal will look like.

The agency plans to allow single wall construction for new petroleum storage tanks, but they must be made of cathodically protected steel or non-corrosive materials such as fiberglass, and leak detection monitoring for both new and existing tanks will be required.

Underground tanks used to store materials defined as hazardous under the Federal superfund law will be required to have secondary containment systems in place.

"This will include double wall tanks, synthetic liners, or some other barrier to make sure that what leaks out is stopped," says Louise Wise, acting chief of the tank standards branch of EPA's office of underground storage tanks.

Variances may be issued to tank operators who can prove that they have an effective leak detection system in place, compatible with the material being stored.

Although these aspects of the proposal are fairly certain to be included in the version to be issued in February, there is much yet to be decided upon in the EPA proposal. The agency does not yet know, for example, what its requirements will be regarding specific design and construction of tanks, the manner of installation, and exactly what kind of leak detection system will be deemed acceptable.

Because of these uncertainties, much of the industry is waiting to see what develops rather than trying to anticipate EPA's decisions and start conforming to them ahead of time. However, regulations at the state and local levels have been pushing chemical and petroleum companies to upgrade their underground storage tank facilities and testing procedures.

Mobil Oil Corporation, for instance, has been in the process of replacing its underground storage tanks for several years under a program formalized in 1983, according to Carole Edwards of Mobil's Marketing & Refining Division. Mobil is pulling out its old, mostly steel tanks at its 13,000 service stations, and is replacing them with new fiberglass tanks, at an estimated cost of more than $100 million, she says.

In choosing which sites to excavate first, Mobil is looking primarily at the age of the tanks and the corrosiveness of the surrounding soil. At some locations, double wall tanks are being installed, depending on such factors as proximity of the tank to the groundwater, porosity of the soil, and local regulations. Most of the tanks being replaced date from the 1950's on, according to Miss Edwards, and are made of non-cathodically protected steel. Placement of the new fiberglass tanks is part of an overall Mobil effort called the Groundwater Protection Program, which also includes training employees in monitoring and stopping leaks.

Rather than try to conform to the existing and impending regulations on underground storage, some chemical companies are opting to simply remove their underground tanks. "We have a long-range plan of eliminating our underground storage tanks," says Dow Chemical Company's Kurt Frey, manager of environmental regulatory activities for the Resource Conservation & Recovery Act (RCRA). "We will eliminate underground storage of regulated substances where it is safe and practical to do so; our policy is that we will not install an underground storage tank from this point forward."

Dow implemented this program in 1982, prioritizing tanks based on the regulatory status of the compounds they contain. In addition to the environmental concerns of the company, Dow is making the move to avoid the heavy expenses it sees associated with upcoming EPA regulations. "The handwriting is on the wall as far as regulations. Looking at future liabilities, retrofitting of tanks, and conducting ongoing monitoring, the economics are clear," says Mr. Frey, explaining why Dow chose to switch to above-ground systems.

Ashland Chemical Company has also chosen to go to above-ground storage where possible. "We have removed all the underground storage tanks we can," says Ashland's Bob Sterrett, manager of environmental engineering at Ashland Chemical. He cites the lack of absolute assurance of leak detection systems as one reason for his company's action. "The technology to determine failure of an underground storage tank is at best not totally proven," he says.

Added to this is the inconvenience of using unneeded inventory to fill a tank to the top in order to perform a leak test, he says. As far as preventive measures, he cites the high cost of double-wall tanks as another reason for eliminating the use of underground storage tanks.

Another problem noted by Mr. Sterrett is that of leaking piping in underground storage systems. "An underground storage tank provider will say that his tank will last for twenty years, but that's no help if their pipes fail before that," he says. Also, cathodic protection on steel tanks does not solve the problem of leaking pipes.

According to Dr. Austin Snow, E.I. du Pont de Nemours & Co.'s secondary containment coordinator, 50 to 60 percent of leaks associated with underground storage tanks originate in the pipes, a problem not addressed by use of non-corrosive materials or double-wall tanks. One solution to this problem is the use of liner syatems with underground storage tanks.

One such system currently being marketed is Du Pont's "Hytrel" polyester elastomer liner. The liner is placed in the excavation pit during installation of the tank, and is designed to prevent the compound being stored from entering the surrounding soil or groundwater in the event of a leak. "Hytrel," according to Du Pont, is a tough, flexible polymer which was chosen for use in tank liners by virtue of its resistance to petroleum products and a variety of chemicals.

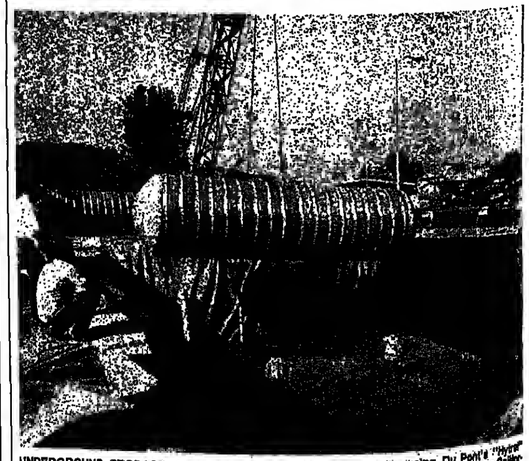
In addition to offering the advantage of protection from leaking pipes, liner systems are also more cost-effective than double wall tank systems, according to Dr. Snow.

While the industry is looking to preventive measures such as non-corroding materials, double-wall tanks, and tank liners, still to be resolved is the issue of leak detection testing. A number of commercial leak detection systems are available, but the industry must wait until next February to find out which system or systems will win EPA approval.

EPA is getting ready to begin a large-scale testing program at its Hazardous Waste Engineering Research Laboratory facility in Edison, N.J. Jack Farlow, chief of the technology development staff at the laboratory, notes that there is a lack of hard data supporting claims made by leak detection system vendors for their products. Consequently, his staff has set up an underground storage system for the purpose of testing the leak detection equipment available on the market.

Testing the leak detection equipment involves being able to manipulate more than 10 variables in the tanks, says Mr. Farlow, including changes in temperature, presence and size of vapor pockets, tank deformation, and the size of the leak. For the detection system being tested, it is first determined what it measures and how its measurements are used to determine whether or not a tank is leaking. Then, by running its own tests, the EPA laboratory staff determines the validity of the procedure in question, as well as its accuracy.

The final step, according to Mr. Farlow, is for the vendor to come in and use his leak detection system on the EPA underground tank set-up, while the variables are manipulated by EPA personnel. At the end of the process, EPA and the industry will find out what guidelines governing leak detection system are to become the new industry standards for underground storage tanks.



UNDERGROUND STORAGE: A secondary fuel containment system, using Du Pont's "Hytrel" polyester elastomer, is being installed under the gasoline storage tank being replaced at a California service station.

Waste Cleanup Fuels High-Growth Industry

By JAMES GUBITOSI

The rest of the 1980's and the 1990's will continue to be cleanup time for the US chemical industry and all industries generating hazardous wastes. While there has been a virtual moratorium on the construction of major new producing plants by chemical makers, waste treatment companies that were hardly known in the 1970's have become the fastest growing employers of the nation's chemical engineering talents.

The commercial market for newly generated hazardous waste in the US is estimated at $1.6 billion for off-site treatment. In addition, commercial firms have a piece of the $11 billion spent on site for waste treatment in engineering services and mobile on-site treatment facilities.

Also, the cleanup of abandoned chemical dumps and the upgrading of operations at active disposal sites has provided a growing opportunity for engineering companies such as Kellogg & Co., of Denver, Colo.

Much of the chemical industry's continuing high level of capital expenditure has been devoted to improved pollution control (the other big tab has been for energy conservation), but because of the reauthorization of the Resource Conservation & Recovery Act in 1984 and the stringent requirements of the superfund bill signed into law by President Reagan last month, the pace of growth in commercial hazardous waste management is not expected to slacken from the 25-percent-per-year rate experienced so far in the decade.

One of the largest and fastest growing—by huge acquisitions, increase in market share and growth of the market—has been Waste Management Inc., of Oak Brook, Illinois.

On the way to total yearly revenues of $2 billion, Waste Mansgement had revenues of $1,452,393,000 in the first nine months, up from $1,187,887,000 in the same period a year ago, and net earninga rose 31 percent to $161,296,000 from $124,359,000.

The company's Waste Management Energy Systems subsidiary signed a contract in September to build and operate for 20 years a 2,200-ton-per-day waste-to-energy plant in Broward County, Fla., near Fort Lauderdale, which is expected to start operations late in 1989.

Waste Management also disclosed that it will build a $20-million environmental monitoring laboratory near Geneva, Ill., for groundwater analysis and the development of new analytical techniques. This facility is scheduled to open in 1988.

During the quarter, the company split off its Chemical Waste Msnagement, Inc. subsidiary, by selling a portion of its equity to the general public.

Chemical Waste Msnagement made an initial public offering of 8.9 million shares of common stock, or about 19 percent of the 99.9 million shares of common stock outstanding after the offering. Waste Management will continue to own 81 percent of these shares.

In another development, Waste Management has acquired Envirotech Operating Services, of San Mateo, Calif., which provides operating and maintenance services for municipally-owned water and wastewater facilities, a move that will increase its capabilities for services to the public sector, said Dean L. Buntrock, chairman and chief executive officer.

Chemical Waste Management, which claims to be the largest provider of comprehensive hazardous waste management services to the US, said that the approximately $310 million of proceeds from the sale of 19 percent of its equity to the public, will be used to pay a cash dividend to Waste Management and repay certain indebtedness owed to that company.

Areas of rapid growth for CWM include resource recovery, thermal destruction, chemical treatment and consultation and remedial service for companies that do their own hazardous waste treatment.

Of these, the fastest growing for the industry as a whole is likely to be high-temperature incineration. Chemical Waste Management claims to have the highest capacity in the US for high-temperature incineration and it is planning to add new capacity for future growth.

For the past twelve years, the company has been operating two ocean incineration ships—Vulcanus I and Vulcanus II. These have been used for the destruction of polychlorinated biphenyls and biomedical waste, as solids, sludges and liquids.

A new name, in a small way, in the field of hazardous waste treatment is Degussa Corporation, the Germsn-based producer of metals and catalysts and one of the world's three largest producers of hydrogen peroxide.

Degussa has developed and is offering commercially hydrogen peroxide technology for the treatment of cyanide-containing waters from mining operations, plating shops and various chemical processes.

As compared with existing processes for cleaning up cyanide, the Degussa method is said to avoid the formation of cyanogen chloride and chlorinated hydrocarbons, which are themselves pollutants. Any hydrogen peroxide in the process will break down into oxygen and water, a spokesman for Degussa said.

Another small but fast-growing clean-up manager is Rollins Environmental Services Inc., of Wilmington, Del., whose revenues have risen from just $38 million in fiscal 1981 to $105 million last year and topped $135 million this year.

Rollins claims to be the technological leader in the chemical waste treatment and disposal industry, despite its comparatively small sales volume. It operates facilities at Baton Rouge and Plaquemine, La.; Bridgeport, N.J., and Deer Park, Tex.

Rollins' earnings in the last fiscal year, ended September 30, were $16,697,000 up from $11,856,000 in 1985. In the fourth quarter, the company had earnings of $5,881,000 up from $3,218,000, as revenues climbed to $39,846,000 from $20,318,000.

Challenging Chemical Waste Management for leadership in hazardous wsste incineration technology has been GSX Corporation, of Columbia, South Carolina. The company claims to have the most technologically advanced incinerator operating at Roebuck, S.C., with a destruction efficiency of 99.99 percent. GSX's revenues and income have grown eleven times from the level of only six years ago, a company spokesman stated.

One of the companies rapidly expanding its role as an outside source for consulting and treating on-site wastes is John Zink Services Incorporated, of Tulsa, Okla., a subsidiary of Alleghany International Corporation.

Zink claims to have more such on-site units operating that any other company in the world. All the facilities are managed by John Zink's own professionals and require no additional staffing by the client companies.

According to government figures, some 7 percent of all hazardous wastes are treated, 51 percent are stored, 20 percent are disposed and 4 percent are recycled. The figure

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Waste Control Efforts Found To Be Lacking

By GLENN HESS

Less than 1 percent of the annual $70 billion national anti-pollution effort is aimed at curbing production of toxic wastes and current programs "do little more than move waste around," says a congressional report.

The Office of Technology Assessment says more than 99 percent of both Federal and state budgets for pollution control are spent to fight pollution after waste has already been generated — not to devise programs to limit the amount of toxic waste actually produced.

Existing pollution control and waste treatment methods often "do little more than move waste around, and many hazardous wastes, such as toxic air emissions, are not yet regulated," OTA says.

"Reducing the generation of waste is the most certain way to reduce risks to health and the environment from hazardous waste," says the report.

"Most hozardous waste experts have agreed for a decade that waste reduction should receive top priority ... but few resources have been committed to doing so," the report adds. "If waste reduction is the best answer, it deserves top priority, and the government and industry should get serious and make it work."

Rep. John Dingell (D-Mich.), who requested the study, says its findings show that by reducing waste production, US firms could improve productivity and "help restore the competitiveness of American industry in very difficult global economic environments."

By devoting virtually all their attention and money to cleaning up pollution, government and industry have limited the financing available for waste reduction, according to OTA.

Some firms have acted on their own to adopt waste reduction programs, the report says, noting the most active have saved millions of dollars in the last decade by limiting generation of toxic wastes. Minnesota Mining & Manufacturing Company (3M) has reportedly saved almost $300 million since 1975 with its waste reduction efforts.

"Pollution controls solve no problem; they only alter the problem, shifting it from one form to another," says Dr. Joseph T. Ling, a 3M executive. "The form of the matter may be changed, but matter does not disappear."

Richard E. Heckert, chairman of E.I. du Pont de Nemours & Co., says rising pollution-control costs make waste reduction increasingly important.

"It's an inevitable consequence of the economics," says Mr. Heckert. "People will respond to cost problems and the government is providing enough of those for us."

Du Pont executive Paul A. Chubb also notes that waste reduction can give industry "a leg up competitively. Today an economically and environmentally acceptable plan for waste management may well make Du Pont the low-cost producer and hold the key to the success or failure of many of our businesses."

But while two divisions of Du Pont reported 50 percent and 35 percent reductions, respectively, in the amount of hazardous waste they generated from 1984 to 1985, OTA says in most cases, industry has not taken advantage of the waste reduction opportunities that exist in every part of production.

Those opportunities, it says, include changing the raw materials used in production, changing production equipment or improving procedures, recycling potential waste and redesigning facilities to generate less waste.

Although the Federal government hasn't done anything to encourage waste reduction, an even more difficult obstacle is the silence that surrounds the issue, says Joel S. Hirschhorn, director of the OTA research project. Because successful companies do not want their competitors to steal their secrets, they keep quiet.

"Take 3M. They have all this success, and yet 3M doesn't reveal any of the details of what they do. We face a problem of companies not documenting their experiences publicly for proprietary reasons," Mr. Hirschhorn says.

He explains that many companies are reluctant to pursue waste reduction out of fear that government would follow with mandatory rules.

"I think their fear is justified," says Mr. Hirschhorn. "They assume that if government moved into this area, they would inevitably look for a regulatory approach. People in mature industries, like petrochemicals and steel, have told us they are very worried about this."

OTA says it would be impractical for government to attempt a traditional regulatory approach in promoting serious waste reduction efforts. The impact of prescriptive regulations on troubled manufacturing industries could be substantial, the report says.

Instead, it calls for voluntary efforts by industry. OTA advises: "Waste reduction succeeds when it is part of the everyday consciousness of all workers and managers involved with production — where the waste reduction opportunities are — rather than when it is a job only of those responsible for complying with environmental regulations."

But OTA also suggests legislation to create an office of waste reduction within Environmental Protection Agency, a grants program to improve general techniques for waste reduction and a requirement that industry report its waste reduction plans.

States should also be encouraged to establish independent waste reduction boards, the report recommends.

J. Winston Porter, EPA's assistant administrator for solid waste and emergency response, says he strongly endorses the waste reduction approaches suggested by OTA.

There is an obvious need to raise industry's consciousness on waste reduction, and companies are likely to respond positively, says Mr. Porter, because "it's one part of pollution control that, in many cases, has a net payoff."

EPA also has a need to increase its awareness of waste reduction and incorporate the concept into the agency's policies, says OTA. The report notes that research on hazardous waste reduction has a low priority at EPA, receiving only a fraction of 1 percent of the agency's current $213 million research budget.

In an effort to place a greater emphasis on waste-reduction in agency policy-making, Mr. Porter says he is setting up a pollution and technology office within EPA that will serve all of the agency's hazardous waste programs.

However, he says he disagrees with OTA's proposal for an office of waste reduction with an assistant administrator within EPA. "I don't think the answer is another level of bureaucracy," says Mr. Porter.

OTA points out that not all hazardous waste can be eliminated, and an effective control system will always be needed. But it says a national commitment to waste reduction can insure that the burden of hazardous waste does not continue to grow and threaten future generations.

The report says a first step could be for Congress to set a national voluntary goal of

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Resource Recovery Grows in Popularity

By PHILIP MANN

For legal and economic reasons, chemical companies of all sizes are striving to increase their resource recovery capabilities, while other companies specializing in resource recovery are opening around the country.

Resource recovery used to be regarded unfavorably because raw materials were generally less expensive than recycled materials. In addition, land disposal was relatively cheap. However, raw material costs have increased, and reauthorization of the Resource Conservation & Recovery Act of 1976 will virtually eliminate land disposal of wastes, leading generators to find other methods of elimination.

Therefore, resource recovery is now a highly regarded way of eliminating wastes and saving money, while complying with Federal regulations.

Allied-Signal has many resource recovery programs that help recoup operating expenses, say company spokesmen. A new program, under the auspices of Allied's Aquatech Systems Division, involves a technology called electrodialytic water splitting. Through this technology, salt is extracted from waste streams and regenerated into its acid and base forms. Brian Rogers, a technical sales engineer at Allied, says several companies have uses for salt's acid and base forms in their chemical processes.

Allied contracted its first sale of this technology in late September. Mr. Rogers estimates the technology should allow the purchaser to save about $400,000 on average the first year. He says this savings will result from fewer hydrofluoric acid and nitric acid purchases and decreased waste disposal costs.

Allied also recovers calcium fluoride from its metallic fluorides facility in Metropolis, Ill. The company once predicted that savings from recovered calcium fluoride would allow the $9-million recovery facility, built in 1982, to pay for itself by this year. Roger Christen, director of the manufacture of acids, says that goal has not been reached, but adds that "the economics have been close to our original projection."

Another program consists of recovering marketable sulfuric acid from an electric company's magnesium sulfite medium. The electric company uses magnesium oxide to remove sulfur dioxide from its flue gas scrubber. After the spent scrubbing medium is sent to Allied, which regenerates the magnesium oxide and retains the recovered sulfuric acid. The magnesium oxide is sent back to the electric company.

RESOURCE RECOVERY: Evergreen Oil Inc.'s resource recovery facility at Newark, Calif., uses "petrecology" to turn waste oil into new lubricating and fuel oil.

Chemical Waste Management is primarily involved in two types of resource recovery. Its solvent recovery system consists of taking a customer's spent solvents and running them through a distillation process, separating reusable material from non-reusable material. The reusable material is either returned to the customer as a clean solvent, or sold to other companies. The non-reusable material is disposed of.

Bob Reincke, manager of public affairs at CWM, estimates that between 70 and 75 percent of a typical spent solvent stream will yield reusable material. He continues that the recovered material is resold at about 80 to 90 percent of the cost of the original raw material.

The company's second main program is the "Alternative Fuels Program." Waste streams that cannot be distilled into clean solvents are converted into fuel by a proprietary process, blended with other compatible wastes, and filtered. What remains is a fuel that can be burned in industrial furnaces. Mr. Reincke notes that this system is only contracted to those who use industrial furnaces, like cement kilns and asphalt plants.

At one of CWM's facilities is what the company calls a fractionation column, used to separate multi-component solvents. For example, if a company has contaminated a solvent by accidently placing it in the wrong tank, the fractionation column can separate the materials into their original forms.

EXPANSION PLANS

Mr. Reincke says CWM hopes to expand its capacities for all its programs. In 1983, the company had one facility, but it now has five.

Eco-Tec says that its acid purification unit (APU) is able to reclaim pickle liquor for continuous use, as opposed to the waste treatment or disposal of spent solutions.

Eco-Tec started the APU in March 1985 at Continuous Colour Coat Limited, a continuous strip electrogalvanizing and coil coating facility near Toronto. The company uses sulfuric acid to pickle cold-rolled steel prior to electrogalvanizing. The APU is designed to remove organic contaminants and control the amount of dissolved iron in the pickle solution continuously, so the acid can be used indefinitely.

Previously, iron build-up in the process bath rendered the acid ineffective. The bath had to be continuously decanted to waste and replaced with fresh acid solution. Eco-Tec says the APU equipment operates with minimal attention and only occassional maintenance, and does not interfere with the master process.

The steel pickling line operates three shifts a day, five days a week. Prior to APU installation, the pickling bath was continuously discarded at a rate of 0.75 gallons per minute. Continuous Colour Coat Limited pegged its annual sulfuric acid loss at 280 tons, or about $26,000 (Canadian) a year. Another process cost was 225 tons a year of neutralization lime used in waste treatment. This added about $18,000 to the annual cost. Now, with APU fully operational, the savings in acid and lime are more than $40,000 a year. Total cost of implementing APU was less than $100,000.

Eco-Tec's most recent program, according to general sales manager Michael Dejak, is helping the printed circuit board industry. Copper is used to lay down circuits on plastic boards. Some of the copper ends up in the waste stream. Eco-Tec recovers the copper, which is in liquid form, turns it into copper metallic sheets, and resells it. Because the copper was formerly disposed of in landfills, Mr. Dejak calls the program "a great incentive for responsible companies."

A third Eco-Tec program involves aluminum anodizing. Aluminum surfaces on buildings are finished, to prevent corrosion. Eco-Tec recovers caustic soda, sulfuric acid and phosphoric acid used in the finishing process. Mr. Dejak says that caustic soda consumption can be reduced by 70 percent, sulfuric acid consumption by 50 percent, and phosphoric acid consumption by 85 percent.

Kipin Industries is building a hazardous-waste-to-fuel plant near Pittsburgh. The plant was originally scheduled to be open last Summer, capable of handling 100 tons of sludge and waste a day. Peter Kipin, president of the firm, says the company decided to redesign the plant, increasing its capability to 800 tons a day. Because of the change, the plant won't be opened until August or September 1987.

The plant will be a joint effort among Kipin, state and local governments, two electric companies, and two universities. The government will provide financial assistance, the universities will be involved in research, and the electric companies will use the fuel.

Kipin also hopes to expand its portable units. For a fee of about $50 per cubic yard of hazardous waste, Kipin takes oily wastes and mixes them with filler, such as sawdust or wood chips. A Kipin-developed additive binds the oil and filler, and afterward the product is briquetted, or turned into pellets, by low heating. Mr. Kipin says the fuel generally has a heating value of 11,000 or 12,000 Btu's per pound.

On October 30, Evergreen Oil, Inc. opened a $10-million facility which reclaims discarded lubricating oil and turns it into usable petroleum products. Evergreen claims this is done without waste or pollution. Using the science of "Petrecology," the plant is in Newark, Calif.

A fleet of tanker trucks collects used oil from service stations, auto dealerships and railroad yards and brings it to Newark. Previously, says Ted James, director of corporate communications, such oil was discarded or burned. With Evergreen's system, the used oil can be re-refined and turned into usable lubricating oil again. The waste material removed from it is used to make roofing material.

Mr. James gives the following breakdown: when the oil comes to Newark, about 10 percent is water. Of the rest, 80 percent becomes usable lubricating oil. About 8 percent is used to power the plant, about 8 percent is turned into the equivalent of number two diesel fuel, and the remainder becomes asphalt flux.

Petrecology was developed by Evergreen's parent company, Kinetics Technology International, and was first used in Greece. Mr. James says that facilities similar to the one in Newark, but twice the size, are planned for Chicago, Dallas, Denver, Kansas City, New York and Philadelphia. The next facility, to be built in Los Angeles, is scheduled for next Spring.

CF Systems Corporation's "Organics Extraction System" is designed to recover organics from liquid or solid wastes. According to CF spokesman Thomas Cody, the waste is fed into the top of the extractor, while a solvent moves into the bottom of the extractor. The two make contact, and about 99 percent of the organics are dissolved. Clean water, or a water-solids mixture, is removed from the extractor.

At this point, the solvent gas-organics mixture leaves the extractor and passes to the separator. Most of the solvent vaporizes in the separator, releasing concentrated organics. A heating process then vaporizes the remaining solvents. Organics are drawn off from the separator and recovered for re-use or disposal, usually by incineration.

PCB Disposal Methods Await EPA's Approval

By NICHOLAS BOYLE

Problems associated with the disposal of polychlorinated biphenyls have led to increasingly diverse and specialized solutions.

Transformer owners, for example, wishing to get the most out of their units but needing to comply with a Federal order to remove the PCB's by 1988, have been seeking methods of PCB destruction that would allow them to keep a transformer in service for the rest of its intended life.

One such method is Unison Transformer Services Inc.'s "Reclass 50" transformer retrofill technique. It involves a time-consuming but effective process whereby PCB's are leached out of the transformer capacitors by a dielectric fluid called TF-1, separated out of the TF-1, and then shipped to one of three incineration sites approved by Environmental Protection Agency for disposal.

Unison, a wholly-owned subsidiary of Union Carbide Corporation, is waiting for final EPA approval before it begins full-scale operations at its Henderson, Ky., plant. Wayne Jenkins, plant manager in Henderson, says the long and frustrating hearing and approval process is coming to an end: "Only the final permit remains. We anticipate starting commercial operations in late November."

An advantage for the transformer owner is the on-site method employed in the "Reclass 50" process. Technicians arrive, drain the PCB's into drums, install the TF-1, and depart with the PCB's. The transformer may then be re-energized and operated with the dielectric fluid inside for five months, after which, the process is repeated. Contaminated TF-1, now called TF-X, is taken to the Henderson plant and the transformer is filled with another batch of TF-1. After another five-month period, "the unit is drained again, re-gasketed, silicon is installed to sponge out the remaining PCB's, and, once a 90-day test period is completed, it is reclassified for commercial use," says Mr. Jenkins.

Federal law stipulates a unit must be 99.67 percent free from PCB's, says Mr. Jenkins, "but our results before EPA were over 99 percent free of PCB's, or less than 2 parts per million."

The contaminated TF-X is put through a proprietary separation process at the Henderson plant that reclaims 95 to 98 percent of the TF-1 and isolates the PCB's for shipment. "There are no byproducts from this process; we use no process water and no discharge results," says Mr. Jenkins.

A slight amount of PCB's may escape into the tank vant, explains Mr. Jenkins, but it is trapped by a carbon filter bed which is incinerated along with the PCB's.

This transformer reclassification process benefits the owner by allowing continued operation but eventually the transformer's capacitors are going to expire. For those askarel transformers still containing PCB's at this expiration point, Chemical Waste Management Inc. and Electro-Pyrolysis Inc. of Wayne, Pa., are developing a plasma arc furnace — a "thermal treatment unit that would offer complete destruction of the capacitors and PCB's at the same time," says CMW.

One of the primary benefits of this design is a one-step sealed loading system which reduces human exposure to PCB's to a minimum. The other is that the capacitor's molten metallic residue is cooled into an ingot, from which the metals can be reclaimed. CMW and Electro-Pyrolysis are also awaiting the issuance of an EPA permit to begin testing the furnace at Model City, N.Y. site.

Proposed at-sea incineration plans were scrapped last Summer and landfilling liquid PCB's has become increasingly expensive because of the controversy surrounding the incidence of migration into nearby water resources and will not be permitted, unless under special circumstances after June, 1987. Faced with the rising costs of incineration and the growing backlog of PCB-laden materials, the chemical industry is focusing on the detoxification of PCB's.

Chemical Waste Management has been operating its "CMW-DeChlor" technique since last Summer. This treatment process, less expensive than incineration, strips the PCB molecules of their chlorine atoms and allows mineral oils to be recovered.

Degussa Corporation, seeking ways to treat the enormous PCB problem in Germany and at the same time reclaim the oils that contain them, is at work on a distillation process that disperses metallic sodium throughout the contaminated oil (CMR 4/14/86, pg.16). "The sodium metal reacts with the chlorine in the PCB's and you get sodium chloride," says Michael Verbeeke, vice-president of chemicals at Degussa. The pilot plant is currently under construction and will interact closely with companies manufacturing mineral oils and the equipment to handle them. Mr. Verbeeke adds that commercial treatment should begin, once the correct patent is acquired, in the Fall of 1987.

Another approach to PCB disposal has been developed and successfully tested by Modar Inc. of Houston, Tex., and Cecos International Inc. of Buffalo, N.Y., at Modar's research facilities in Natick, Mass., and Cecos' Niagara Falls site. It is an oxidation process whereby contaminated materials are pressurized and introduced with compressed oxygen into the system. The solution is then heated to above 374 degrees and a pressure of 3200 pounds per square inch is maintained. Constituents of the waste solution are either oxydized or converted to carbon dioxide, water or weak acids.

Claimed advantages of the Modar/Cecos system include the recovery of energy from waste streams and reapplication of that energy in the preheating treatment of more waste, an enclosed system which provides complete control of the process, and the elimination of stacks and scrubbers necessary for removal of pollutants by incomplete combustion.

The Modar technology is targeted for use by operations as waste generators, commercial waste treaters and disposers, and decontamination of superfund sites. Modar and Cecos expect full-scale plant operations to begin in December 1987. Although this new technology is not an incineration process, it meets EPA combustion efficiency guidelines for incineration of PCB's by fifty times, according to a Modar spokesman.

Though all of these techniques of dechlorinization, chemical treatment and other methods of PCB disposal are promising for long demonstration, testing, public hearing and approval process that goes hand-in-hand with PCB's allows development dollars to contributes to the mounting quantities in backlog at the three EPA-approved incinerator sites.

Tests such as the General Electric EPA witnessed demonstrations of detoxification of PCB's in South Glens Falls, N.Y., are indefinitely postponed.

The search for alternative heat transfer media to PCB solutions has led industry researchers to various silicones. "The silicones are ideal for transformers," says Wayne Jenkins of Unison. "They are innocuous and ultra-stable dielectric fluids. They do require annual servicing such as checking for leaks in an askarel transformer, and they're far less flammable."

The fire-point of the Union Carbide silicones used in the final step of Unison's TF-X removal process is greater than 300 degrees centigrade. Though a mineral oil or askarel transformer costs less initially, the silicone transformer is said to require less maintenance and has lower installation and long-term operating costs.

Waste Reduction

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adds, and do not take increased productivity into account.

The company was cited by OTA as one of the national leaders in waste reduction. Earlier this year, 3M's Decatur, Ala., plant was awarded a state citation for progress in waste reduction. Company spokesmen report that company plants in Tennessee, Minnesota and Wisconsin have received similar praise. An integrated problem solving approach has been the key. Dr. Susag explains, "We have tried to take environmental protection and pollution management issues out of the exclusive domain of the corporate staff, involving manufacturing, design and operations people in the process."

Among the innovations used to encourage cooperation are "idea sheets," posing problems brought up by individual plant managers and executives. When solutions are found, design and plant teams responsible are cited and the amount of money and waste saved are reported.

Dr. Susag says that waste reduction at source has definitely paid off, illustrating this with an example of changes implemented at 3M's "Chemolite" plant in Minnesota. The facility, which produces magnetic oxides, was discharging too much ammonium sulfate, a reaction byproduct, into its wastewater. When concentrated ammonia levels exceeded state quotas, the company had a choice: either build a waste processing facility for $1 million, which would entail producing a solid sludge, and eventual land disposal headaches, or find a way of recovering ammonia in the process bed.

The plant team which solved this problem decided to use a vapor compression evaporator, costing $1.5 million, to recover ammonia from the waste stream. The 40 percent NH_3 solution recovered is now being sold as fertilizer, generating $150,000 in revenues per year, and preventing the discharge of 677 tons of water pollutants.

Similar innovations, from new reactor cleaning systems to water-based pill coatings, have resulted in similar savings and substantial waste reduction.

Like 3M, Dow has had a corporate "multimedia" waste reduction program in operation for over a decade. From 1970 to 1984, the company saw a 90 percent reduction in air emissions alone.

Ryan Delcambre, issue manager for waste management at the firm, reports that Dow processes all of its wastes internally, mostly through its Texas Division. None of its hazardous waste it handled off-site; less than 1 percent of the total amount of waste generated, in the form of incinerator ash, is landfilled.

The company is focusing on reclamation, incineration and biooxidation. Recycling has also become a more prominent form of waste reduction at Dow's Louisiana Division plastic plant. Mr. Delcambre reports that about 500 pounds of HDPE are being recycled there daily. Non-process specific biodegradation is the main form of treatment at the company's Louisiana, Texas and Michigan plants.

Mr. Delcambre reports that the program has enabled Dow to realize substantial savings.

Other chemical companies have also discovered the benefits of waste reduction. OTA cites Rohm & Haas and Exxon Chemical Americas as reducing waste by 10 percent each from 1984 to 1985. Two divisions of Du Pont were said to have reduced waste by 50 percent and 35 percent, respectively.

Although most major chemical companies feel that the industry has made definite progress in waste reduction at source, most concede that there is ample room for improvement.

As Mr. Delcambre says, "much effort is being made, and industry education movements are in progress, but many companies still don't have programs going. The movement toward waste reduction will be given its biggest push if top management within the industry supports a systematic concept."

Dr. Susag feels that a more sweeping attempt to reduce waste will require shifting the focus from a narrow base of product and yield improvement to a more widespread goal of overall pollution reduction and environmental compliance cost savings.

Waste Control

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reducing industrial wastes by 10 percent annually for the next five years.

Mr. Hirschhorn says such a goal could help convert the long stated importance of waste reduction into a true priority and reduce annual environmental spending substantially, ultimately by billions of dollars.

By reducing waste, concludes OTA, industry would use materials more efficiently and lower waste management, regulatory compliance and future cleanup costs, as well as reduce uncertain but potentially large civil and criminal liabilities and promote modernization and innovation.

In a recent report to Congress, EPA says a survey of 22 industrial processes indicates that industry has the potential to reduce the amount of hazardous waste it currently produces by one-third or more.

The agency plans to develop the first national computerized data base on waste reduction techniques and says it will provide technical assistance to help companies achieve waste reductions.

"EPA found that industry has a significant potential to reduce public health and environmental risks by minimizing its hazardous waste production," says Mr. Porter. "As a result, EPA will encourage industry to find ways to reduce both the volume and toxicity of its waste."

Of the 286 million metric tons of hazardous waste generated annually in the US, EPA says the chemical industry produces 186 million tons, or 65 percent.

Waste Cleanup

Continued from Page 40

add up to more than 100 percent because storage and treatment usually figure in disposal and recycling.

Of the 20 percent of the hazardous wastes that are disposed, some 7 percent go to landfills, 45 into impoundments and other land storage systems and the remaining 48 percent into injection wells. Of the waste that have been treated, present practice involves incineration of only about 1 to 3 percent of the volume, while most of it—about 85 percent—goes into some kind of storage, and the rest is treated by biodegradation systems, chemical neutralization and other chemical processes.

Since in present practice, the great bulk of the hazardous substances discharged by industry eventually goes into some kind of land storage or other storage system, pointing toward what will eventually be an intolerable accumulation, the waste management industry's greatest challenge will be to come up with technological advances in incineration, recycling and process modification to prevent the generation of hazardous substances.

HEAVY & AG CHEMICALS

Sodium Tripoly Gets

Continued from Page 3

grew to 30 percent this year, from 27 percent last year. Another dark cloud is the possibility of more anti-phosphate legislation. Currently, says Monsanto's Higgins, discussions about prohibiting phosphate-containing laundry detergents are going on in Virginia and North Carolina.

The feeling among many in the phosphate industry, though, is that these bans have less than favorable chances of enactment, and that, overall, anti-phosphate sentiments are on the wane. Today, about 25 percent of the US market is closed to phosphate detergents.

Imports continue to annoy tripoly producers. Through September they are up more than 25 percent over last year's levels. At 5 or 6 percent of the market, imports are not a significant volume threat to US producers, but they do have an effect on pricing.

Today's sodium tripolyphosphate list price of 37¼ cents per pound in bulk, f.o.b., represents a decrease of 2 cents per pound since the beginning of the year. Producers attributed the reduction to import pressure and improved operating costs.

The softening of the dollar has decreased the competitiveness of much of the imports from Europe, but material from major exporters such as Israel, Italy, China and Mexico is relatively unaffected. Overall, producers feel imports will not penetrate much further.

Sources say that for the majority of customers, tripoly is sold at list. For some of the large detergent companies, however, a small amount of discounting is said to exist.

PRICES TRENDLINES

WEEK ENDING NOV. 14, 1986

CHANGES/UP

None

CHANGES/DOWN

None

HEAVY & AG INDEX

This Heavy & Ag Chemicals index reflects the prices of 18 representative materials in this sector and the quantity of each produced in 1985.

Nov. 14, 1986	113.69
Nov. 7, 1986	113.69
Oct. 17, 1986	113.69
Nov. 15, 1985	113.69

Chemical Prices Start on Page 52

CHLOR-ALKALI — Dow Chemical USA is *initiating* a $10-per-ton increase in the off-list price of chlorine and a $25-per-ton increase in the off-list price of caustic soda solution. The increases are effective immediately for spot business and as terms allow for contract business.

New chlorine prices will not exceed $195 per ton, f.o.b. Freeport, Tex., Plaquemine, La., and Pittsburg, Calif.; and $200 per ton, f.o.b. Northern shipping points.

For caustic soda solution, prices range from $175 per ton (in Freeport and Plaquemine) to $300 per ton (in Arvada, Colo.). All prices are dollars per ton (basis 76 percent Na_2O) for 50 percent regular grade.

Prices for 50 percent purified grade are $30 per ton higher than regular grade prices at applicable shipping points. Prices for 73 percent regular grade are $30 per ton higher than 50 percent regular grade. Prices for 73 percent purified grade are $45 per ton higher than 50 percent regular grade.

Dow notes that, with moderate demand growth, chlorine operating rates are above 90 percent of on-line capacity. Additionally, Dow says that caustic soda demand has increased, resulting in what the company calls an improved "balance" of these co-products.

Dow also announces that, effective January 1, a superfund tax will be added to chlorine at $2.70 per ton, and caustic soda (all grades) at 28c. per ton, as a separate line item on each invoice.

SULFUR CHEMICALS — Occidental Chemical Corporation is announcing a new price schedule for its line of sulfur products.

Sulfur monochloride, in bulk tankcars and trailers, will cost 17¼c. per pound (up from 16¼c.); for truckload quantities of drums, 24c. per pound (up from 22½c.); and for less than truckload quantities of drums, 25¾c. per pound (up from 24c.). Prices are f.o.b. Niagara Falls, N.Y., freight equalized with Lemoyne, Ala, for bulk shipments only.

CHLOR-CAUSTIC OUTPUT

AUGUST: SHORT TONS/DAY

	AUG.	JULY	AUG. '85
CHLORINE			
Gas produced*	27,437	28,287	27,247
Liquid produced	23,272	24,400	23,244
Liquid shipped	13,556	14,645	13,426
CAUSTIC SODA			
Liquid produced**	26,321	26,254	26,563
Solid produced	558	601	717
CAPACITY	35,060	36,365	36,029
OPERATING RATE	90.0%	86.8%	76.3%

Source: Chlorine Institute.
*Includes amount liquefied.
**Includes amount later converted to dry caustic.

Sulfuryl chloride, in bulk tankcars and trailers, will cost 16¾c. per pound (up from 17¼c.); for truckload quantities of drums, the price will be 25 1/2c. per pound (up from 24c.); and for less than truckload quantities, 27½c. per pound (up from 25½c.). Prices are f.o.b. Niagara Falls, freight equalized with Lemoyne for bulk shipments only.

Sulfuryl chloride's new price, in bulk tankcars and trailers, will be 40c. per pound (up from 38c.); for truckload quantities of 15-gallon drums, 53½c. per pound (up from 50c.); for truckload quantities of 55-gallon drums, 45c. per pound (up from 42½c.); for less than truckload quantities of 15-gallon drums, 56½c. per pound (up from 52½c.); and for less than truckload quantities of 55-gallon drums, 48c. per pound (up from 45c.). Prices are f.o.b., Niagara Falls.

Thionyl chloride, in bulk tankcars and trailers, will cost 51c. per pound (up from 50c.); truckload quantities of 15-gallon drums will cost 70c. per pound (up from 68c.); truckloads of 55-gallon drums, 01c. per pound (up from 60c.); less than truckload quantities of 15-gallon drums under 5,000 pounds, 67c. per pound (up from 65c.); less than 15-gallon drums more than 5,000 pounds, 72c. per pound (up from 70c.); and less than truckload quantities of 55-gallon drums more than 5,000 pounds, 64c. per pound (up from 62c.). Prices are f.o.b., Niagara Falls, freight equalized with Baytown, Tex.

Occidental says the increases are necessitated by rising raw material and labor costs. Stauffer Chemicals produces sulfur chlorides in Lemoyne, and Mobay Chemical Corporation produces thionyl chloride in Baytown.

SUPERPHOSPHATE — Demand for normal superphosphate has dropped considerably, say observers.

The switch to other sources of P_2O_5 is price motivated. Farmers are said to prefer using normal superphosphate, but cannot because of their financial troubles. As a result, says one observer, demand for bland fertilizers is growing, at normal superphosphate's expense. "MAP and DAP are cheaper sources of P_2O_5," he says.

Fertilizer Institute figures corroborate observers' claims. The year from July 1985 to June 1986 saw production drop 31 percent and domestic disappearance drop 34 percent, compared to the same period a year earlier.

"Those figures will get lower," laments an observer. Another adds that farmers will continue to use cheaper material. Despite the situation, notes one observer, capacity for normal superphosphate has not decreased.

Alzheimer Drug To Be Retested

The medical and scientific advisory board of the Alzheimer's disease and related disorders association (ADRDA) announced today that it will be organizing further testing of the oral drug, tetrahydroaminoacridine (THA), in the treatment of Alzheimer's disease patients.

This is in response to a report published in the Nov. 13 issue of the *New England Journal of Medicine*.

The report describes the findings of the University of California at Los Angeles. Dr. William Summers and his associates administered THA to 17 patients, a average age of 70, with presumed moderate to severe Alzheimer's disease. Each patient was given THA orally in doses determined individually for each patient and nine or more capsules of commercial lecithin per day in this double-blind study. Overall, 10 of the 17 patients showed significant improvement in performance on some tests and ratings. No serious side effects attributable to THA was observed.

According to the medical and scientific advisory board of ADRDA these results are interesting and provide a basis for further research. This research needs to be replicated by other laboratories and with many more patients before definitive answers can be given about THA's value in treating Alzheimer's patients.

Alzheimer's patients have decreased amounts of the brain chemical, acetylcholine. THA inhibits the enzyme, acetylcholinesterase, which breaks down acetylcholine. By inhibiting this enzyme, THA increases the amount of acetycholine in the brain. THA has also been reported active as a potassium channel blocker. Lecithin provides the essential substance, choline, uses to create acetychloline.

Over the past few years other cholinergic drugs have been tested in Alzheimer's disease with relatively little or no therapeutic benefit. These tests have raised and crushed the hopes of Alzheimer's disease patients, their families and caregivers. In order to speed the process of assessing the avlue of THA in Alzheimer's disease, ADRDA's medical and scientific advisory board is organizing a team of scientists to replicate these findings in double-blind studies of THA. These studies will attempt, with a larger group of Alzheimer's disease patients, to replicate the results reported by Dr. Summers and his associates.

ADRA is a national not-for-profit voluntary health organization dedicated to finding a cure for Alzheimer's disease by developing and funding research programs. By the end of 1988 ADRDA will have spent an estimated $4.5 million on 122 separate research projects.

Standard Oil

Continued from Page 3

improved technology to meet a growing demand. "Davy's derivative technology enables us to shift feedstocks from high-cost acetylene to lower cost butane," he adds.

Peter Walte, chief executive of Davy McKee Petroleum & Chemicals, says the ability of the combined technologies to produce lower cost engineering plastics and elastomers will have a substantial impact on the advanced materials marketplace.

"The availability of Davy's butanediol to PBT technology, commercialized by our Frankfurt-based subsidiary, Zimmer, and the opportunity to develop PBT to selected fibers, enhances the market potential available to our companies," he says.

Some 51 percent of this year's 350-million-pound maleic anhydride demand is expected to come from unsaturated polyesters, with 11 percent going to lube oil additives, 8 percent to agricultural chemicals and 10 percent into production of fumaric acid.

Butanediol's fastest-growing outlet is to polybutylene terephthalate, a high growth thermoplastic, while gamma-butyrolactone is a precursor for producing the pyrrolidones family of chemicals, including N-methyl pyrrolidone, a solvent under consideration as a replacement for methylene chloride in paint stripper formulations. Tetrahydrofuran finds use in solvent applications and to poly-THF for specialty elastomers.

EPA Draws Praise

Continued from Page 7

to the Resource Conservation & Recovery Act to end land disposal of untreated toxic weates in the next five years. The agency estimates it will cost industry $152 million a year to meet the restrictions on dioxins and spent solvents.

In response to the ban, the Halogenated Solvents Industry Alliance (HSIA) is urging its members to immediately arrange for incineration of their waste material.

At the same time, HSIA is strongly calling on EPA to work with state aod local governments to expedite the siting and permitting processes for incinerators in order to provide for the lastest possible increase in capacity.

HSIA preaident Dr. Paul A. Cammer said, "EPA must recognize the reality of this situation. The new prohibitions on disposal of solvent wastes at hazardous waste disposal facilities mean industry will have to rely almost exclusively on incineration.

"Right now," Mr. Cammer stated, "there is inadequate incineration capacity for certain categories of waste to meet current, let alone future, demands. While it is true that many general incineratoraexist nationwide, the capacity for incineration of aolids and aludges is grossly inadequate.

"This means," Mr. Cammer stressed, "EPA must act immediately to increase the capacity of existing incinerators and permit the constructioo of new facilities."

SOLVENTS ARE RECYCLED

Mr. Cammer points out that a major portion of chlorinated solvents used in this country are recycled, thereby fulfilling the reasource recovery intent of RCRA. This also reduces the volume of solvent waste requiring disposal. The waste aludge that remains following the recycling process is the object of this rulemaking.

Mr. Cammer called on HSIA members to contact their Federal and state legislators and regulators to urge them to work for the rapid approval of new incineratora in their districts, aa well as increased capacity for those already in operation.

Mr. Cammer also saya that companies without access to incineration services should contract for them ea quickly aa possible.

He notes, that there are aome exemptions to the new regulations. It may be possible for some companies to get e one-year extension of land disposal rights, with a possible renewal for en additional year. EPA will consider these requests on a case-by-case basis.

Other exemptioos to the land disposal ban are a two-year delay for wastes with a total solvent content of less then 1 percent and e two-year delay for "small quantity generators," who produce 100 to 1,000 kilograms of weate per month.

Mr. Cammer says HSIA is prepering an information package for its members which includes detaila of the procedural requirements and instructiona for filing an individual company's petition for an extension, addresses and telephone numbers of Federal and state hazardous waste officials, and lists of commercial incinerators and aolvent recyclers.

"HSIA endorses incineration as the most complete and environmentally acceptable method of waste sludge disposal. However, we are greatly concerned with the agency's assessment of both incinerator capacity and the demand for solvent sludga wastes," Mr. Cammer adds.

He saya HSIA will continue to work with EPA to further quantify and update both incinerator demand and capacity for aolid and sludge wastes.

Scientists in Flap

Continued from Page 7

agency involved, the Pan American Health Organization."

It was also disclosed last week that researchers at Oregoo State University have conducted field-trials on a gene-altered fmd vaccine in New Zealand without permission from the US government. The tests were financed by the Department of Agriculture and approved by two agencies of the New Zealand government.

A spokesman for the Industrial Biotechnology Association said the revelations reflect a belief by many scientists that US biotechnology regulations are a barrier rather than a safeguard for the emerging industry.

"The pathway may be clearer in foreign nations to getting approval," said Dr. Kathi Goldhammer, director of technical affairs for IBA.

Environmentalists responded by filing a lawsuit which asks the US District Court in Washington to invalidate the White House biotechnology guidelines.

The Foundation on Economic Trends says the Environmental Protection Agency and the Agriculture Department ignored the advice of their own scientists to permit certain organisms to be released into the environment without review.

The suit contends documents show that of the 23 scientists who reviewed the regulations warned against the exemptions.

"They clearly show an overwhelming number of scientists at EPA and USDA were opposed to the biotechnology guidelines the President and said they were scientifically indefensible," says Jeremy Rifkin, foundation president.

Engineering Resins Marketers Shifting to a 'Niche' Strategy

The engineering resins industry is going through fundamental changes as it struggles with lower growth, declining value added, and reduced potential for profitability.

Yet even though the business is changing, it is thriving. The key to product development for the next five years is more complex metal replacement and the development of specialty product systems. The results of those changes will not bear fruit for almost a decade, but growth will hold at 3 to 6 percent per year until then.

So says Business Communication Company, Stamford, Conn.-based research firm in a new study which adds that producing companies such as E.I. du Pont de Nemours & Co. and General Electric Company have been shifting focus toward "product modification" in recent years, anticipating the maturing of the market.

Emphasis is primarily on alloying, but fiber and filler compounding/reinforcement are also being stressed, as are the utilization of liquid crystal and interpenetrating network technology.

Engineering Resins Markets

	1985 (MM lbs)	1990 (MM lbs.)
Automotive	475	650
Electronics	325	400
Consumer	250	300
Industrial	185	185
Construction	185	188
Prototype	30	80
Specialties	25	50
Other	84	85
Total	1,519	1,918

Source: Business Communications Company, Stamford, Conn.

Such products and polymer modification techniques illustrate how resins producers are targetting specific niches with specially tailored products to maintain market share.

Most producers are, moreover, positioning themselves in the "swing" automotive and electronics markets through special engineering programs — for example, for plastic bumpers, or through the acquisition of high-tech firms that are well-placed in electronics. Many of them are also developing alloys to meet changing performance requirements.

The catalyst for these moves is the declining growth rate in the automotive and electronics industries that has become increasingly pronounced in recent years. These industries are now in a position of semi-maturity, and are, moreover, facing heightened international competition, BCC says. The large housing segment of the electronics industry, for example, was hit by the slump in the computer industry as well as a sharp rise in imports of housed electronic assemblies.

Thus, a market that turned in a dismal 3.5 percent growth total in 1985, might recover this year or next — but, BCC predicts, "to no more than a 5 percent rate of growth." Gone are the "good old days" of 15 per cent annual growth, the company says, given its reading of the swing electronics and automotive markets.

Other segments — consumer, industrial, construction, for example — face declining growth rates as the sectors mature. In short, the market is becoming heavily dependent on the economy, which, economists predict, will grow at 2 to 4 percent over the next several years.

While a lower growth rate for the industry as a whole is forecast, BCC sees the specialty part of the business as the silver lining to the cloud. "Producers are developing new products and product ayatems to fight downward pressures in the industry. A new realism has taken hold of the industry, which bodes well for creative responses to the future," notes the report.

The "swing" industries — electronics and automotive — have been hit by competition from overseas, and show no prospect of a return to substantial growth. Likewise, the slump in home computer sales has hit engineering resins, as has the general flattening of the construction, consumer, and industrial sectors of the economy.

But within that overall flat outlook the report finds promising niches that offer growth equal to the 15 percent of the boom years. The specialty part of the business, for which producers are retooling for very specific marketa, is where growth will be found. The report finds new realism among producers, particularly within the automotive and electronics markets.

With regard to industry trends, BCC projects average annual growth at 4.8 percent through 1990, with 15 percent growth in the prototype and specialties segments. While this may be slow for the industry as a whole, clearly there are opportunities for a company that can position itself to take advantage of the new markets.

Rohm and Haas

Continued from Page 5

tial competition" between the two companies in the sale of ion exchange resins has been eliminated."

The suit also charges that high start-up costs in the industry will probably prevent new companies from entering the market.

According to the proposed consent decree, which cannot become official until at least 60 days after publication in the *Federal Register*, Rohm and Haas must offer to sell a California resin plant and its production formulas through an independent broker.

The company would be required to continue operating the plant until it is sold, or at least six months. In addition, Rohm and Haas would have to assist the purchasing company in establishing a research and development laboratory, advise the purchaser on the production process, and help the new firm hire and train a sales and technical staff to restore competition to the business.

The proposed decree would allow Rohm and Haas to retain certain French assets of Duolite.

COATINGS & PLASTICS

PVC October Hike Successful; Resin Makers Plan Next Round

Producers of polyvinyl chloride (PVC) describe October's pricing move as successful, and say they have seen prices for the resin firm between 1 and 2 cents per pound since September.

With demand and capacity utilization high, many are planning a second round of increases, to take effect December 1.

So far, Shintach Inc. has indicated that it will raise PVC selling prices across the board by 2 cents per pound in December, moving the market price for pipe and general purpose grade resin to 32 cents per pound and 33 cents per pound, respectively. Formosa Plastics Corporation USA will go along with the increase, a spokesman says, but plans to boost its selling prices, already uniformly one cent per pound lower than the industry average, by 1 cent rather than 2 cents per pound on December 1.

Demand for PVC, which soared over the Summer in response to high construction rates, has been exceptionally strong this quarter.

SALES UP 9 PERCENT

Through September, sales rose 9 percent and production 7 percent over last year's year-to-date figures. October also saw a healthy market, with preliminary SPI data showing sales for the month up 11 percent over 1985 year-to-date levels.

Producers report that November sales look well for the market, some feel that domestic PVC demand this year could well exceed earlier projections of 5 to 7 percent growth.

Continued tightness in domestic merchant supplies of vinyl chloride monomer (VCM), which forced many to cut PVC production earlier this year, has had little effect on current production rates. Most producers relate that they are operating at full, or close to full capacity.

Weak construction demand and discounting caused selling prices to slip 2 cents per pound over the first half of the year, with a considerable impact on margins. Moves to increase market prices in January and June, both initially successful, lost momentum; October's "increase" was actually a second restatement of January's selling price schedule.

PRIME PIGMENTS

LEAD OXIDE — Effective November 7, all major producers of litharge and lead oxide raised prices for the products by 1c. per pound. The increase was prompted by 1c. per pound hikes to lead metal costs.

Currently, Hammond Lead Inc., a major producer, is listing litharge at 34.5c. per pound, with lead monosilicate at 36.05c. per pound and lead oxide from 36.5 to 39.5c. per pound. Other producers quote similar prices.

The market is expected to grow 2 percent this year, producers say.

ZINC OXIDE — With zinc metal prices up to 50c. per pound, producers of zinc oxide raised prices for the pigment by 3c. per pound late last month. This is the third time prices for the colorant have been raised since July, when metal costs first began to climb.

New Jersey Zinc Company, which raised prices effective October 30, is now listing American-process zinc oxide at 57c. to 59c. per pound.

St. Joe Mineral Corporation increased prices on October 21, and now lists its "500" series French-process grades at 55c. per pound, with USP and photoconductive grades at 59c. per pound and 50c. per pound, respectively.

Pacific Smelting Company raised prices on October 27, currently its French-process grade is listed at 58.5c. per pound, with activated grade at 57c. per pound.

Producers describe plastics demand for zinc oxides as excellent this year; the paint industry demand for pigment is "not bad" this year, they say, but not as strong as had been hoped, one product manager says.

PLASTICS MATERIALS

POLYVINYL BUTYRATE — Producers of PVB have been expanding capacity this year to meet with growing demand for the resin, used in laminated safety glass and related adhesive applications, as well as specialty coatings.

Both Du Pont and Monsanto, the only producers of PVB resin and sheet in the US, have increased PVB capacity this year. Mon-

PRICES TRENDLINES

WEEK ENDING NOV. 14, 1986

CHANGES/UP

Lead oxide, 1c. per lb.
Zinc oxide, 3c. per lb.

CHANGES/DOWN

None

COATINGS INDEX

The Coatings & Plastics index reflects the prices of 13 representative materials in this sector and the quantity of each produced in 1985.

Nov. 14, 1986	308.4
Nov. 7, 1986	308.4
Oct. 17, 1986	308.4
Nov. 15, 1985	308.4

Chemical Prices Start on Page 52

COATING & PIGMENT IMPORTS: SEPTEMBER

CENSUS BUREAU REPORTS ON THE TOP PAINT MATERIALS.

	SEPTEMBER 1986 QUANTITY	SEPTEMBER 1986 $ VALUE	AUGUST 1986 QUANTITY	AUGUST 1986 $ VALUE
Antimony oxide, lbs.	2,178,585	1,839,986	2,194,411	1,384,725
Carbon black, lbs.	10,468,013	2,936,686	12,725	74,343
Chrome colors:				
Chrome oxide green, lbs.	180,101	169,034	322,172	336,532
Molybdate orange, lbs.	148,056	142,081	126,829	146,338
Yellow, lbs.	384,958	282,593	434,746	363,371
Zinc Yellow, lbs.	146,324	162,851	162,595	95,179
Cobalt Oxides, lbs.	20,842	131,278	22,046	114,650
Copper Oxide, lbs.	N/A	N/A	40,000	35,298
Iron blues, lbs.	777,582	929,270	356,395	474,404
Iron oxides, hydroxides, net, lbs.	84,032	9,084	230,105	51,992
Synthetic:				
Black, lbs.	84,874	23,937	146,446	49,421
Red, lbs.	1,205,887	227,074	2,213,735	316,494
Yellow, lbs.	1,743,745	361,419	1,790,656	415,775
HRPP, lbs.	840,482	427,068	912,473	1,443,858
Litharge, lbs.	2,711,822	526,537	2,918,416	554,294
Red Lead, lbs.	80,000	19,822	243,000	62,521
Sheetrock, bleached, lbs.	82,860	176,431	160,416	366,497
Sheetrock, buttermilk, other tans, lbs.	133,473	190,117	114,116	205,726
Steel dust, lbs.	517,561	820,381	747,749	979,457
Titanium dioxide, lbs.	28,840,012	16,266,536	35,223,526	21,726,216
Ultramarine blues, lbs.	387,725	413,305	861,616	865,037
White lead, basic carbonate, lbs.	40,000	21,926	9,912	2,134
White lead (lead free), lbs.	6,646,410	2,382,178	9,877,866	2,261,46

PERFUMES & FLAVORINGS

Linalool, Linalyl Acetate Sales Send Prices and Imports Up

Linalool and linalyl acetate sales have picked up tremendously, according to industry sources, depleting current US stocks. Spot prices for the two aroma chemicals have strengthened 15 to 20 percent over the last three months in response to the increased buying activity.

Linalool increased from $2.95 to $3 per pound to $3.40 to $3.50 per pound. Linalyl acetate is quoted at $4 per pound.

"The big rush on linalool and linalyl acetate caused the present shortages," says an aroma chemicals broker. "But it is the weaker dollar," he adds, "that is behind the activity in the first place."

Another broker, agreeing that the weak dollar has spurred foreign interest, regards the traditionally static aroma chemical pricing as a major incentive.

"Last Summer, when foreign buyers became aware that US producers were not raising their prices, in effect selling the materials at a discount, they took whatever was available." He adds that despite the flurry of buying, the currency will fluctuate again and the roles will reverse: "It is a temporary thing."

Domestic producers, meanwhile, find themselves selling material at higher prices and at a faster rate than they can generate it.

SUPPLIER SOLD OUT

"Sales of linalool and linalyl acetate have been increasing substantially both domestically and abroad," says a domestic supplier. "We are sold out of these two materials."

This supplier emphasizes that the overseas market is not solely responsible for the market strength. "Our domestic market has seen a significant increase as well."

Import figures of linalyl acetate show larger volumes coming into the US in 1986 than in 1985. January through August, 1986 imports totalled 736,843 pounds while yearend totals for 1985 reached only 696,864 pounds.

Sources speculate that circumstances similar to those affecting the synthetic hydroxy citronellal market (CMR 9/29/86 pg. 26) now pertain to linalool and linalyl acetate.

Larger producers with compounding capacities on both sides of the Atlantic bring material into the US because fixed costs, thanks to currency exchange rates, are lower.

A representative of a major international linalool and linalyl acetate producer said such a move is "a possibility."

A market analyst attributes the export figures to a compounding switch rather than an increase in domestic consumption. "That they're switching the use of the aroma chemicals from abroad should hold true," he says.

As to the price increases themselves, industry sources are in agreement that suppliers are confident sales won't suffer. "The largest suppliers feel they won't lose business if they increase prices in line with currency differentials," says an aroma chemicals broker. He notes prices have been raised selectively to avoid straining the market.

Another aroma chemicals dealer feels prices on these larger commodities will be raised whenever possible.

"Whenever there is an opportunity to raise prices, as has been justified recently by foreign buying, then producers will seize it," he says.

Japanese producers have been raising their prices, according to an importer, to get the most from the market. "The Japanese also raised linalool prices as a reaction to other market pricings, though not as steeply."

Outlooks for the linalool and linalyl acetate market range from steady to strong. The domestic supplier foresees "the current situation continuing through the next 6 to 9 months."

A broker ties pricing to the welfare of the dollar, predicting a surge on international markets in the first quarter of 1987 and a subsequent price softening.

A market analyst also sees a direct correlation between the dollar and the linalool market, but is less confident the dollar will regain its early 1985 posture very soon.

"Indicators aren't pointing to the kind of growth necessary for substantial strengthen-

Continued on Page 69

PRICES TRENDLINES

WEEK ENDING NOV. 14, 1986

CHANGES/UP

Annatto seed, Peruvian, 5c. per lb.
Balsam oil, Peruvian, 50c. per lb.
Basil oil, Madagascar, $5 per lb.
Cedarleaf oil, 50c. per lb.
Fennel, Indian, 3c. per lb.
Ginger oil, Indian, $5-7 per kilo
Palmarosa oil, Brazilian, $1 per kilo
Saffron, $6 per lb.

CHANGES/DOWN

Anise seed, Chinese, 5c. per lb.
Bergamot oil, $1 per lb.
Cananga oil, 25c. per lb.
Cardamoms, mixed greens, 25-30c. per lb.
Clove leaf oil, Madagascar, 60c. per kilo
Eucalyptus oil, 70%, 75c. per kilo
Laurel leaves, Turkish fancy, 10c. per lb.
Lemon oil, Italian, 45c. per kilo
Orange oil, Valencia, 10c. per kilo.
Savory, Yugoslavian, 2c. per lb.
Spearmint oil, Chinese 50%, 40c. per kilo

PERFUMES INDEX

The Perfumes & Flavorings index reflects the prices of 11 representative materials in this sector and the quantity of each supplied in 1985.

Nov. 14, 1986	71.00
Nov. 7, 1986	71.00
Oct. 10, 1986	71.00
Nov. 15, 1985	71.00

Chemical Prices Start on Page 52

SEED & SPICE IMPORTS: AUGUST

A SELECTION OF STATISTICS FROM THE BUREAU OF CENSUS.

		AUGUST	JULY	1986 TO DATE	AUG. '85
Caraway seed	lb.	875,534	822,110	6,298,581	376,597
Cassia	lb.	3,006,075	2,112,883	16,803,146	1,743,498
Celery seed	lb.	205,598	325,362	2,807,103	377,711
Cinnamon, unground	lb.	129,584	182,402	1,875,582	200,157
Cloves	lb.	186,069	148,499	1,793,583	116,491
Coriander	lb.	840,877	462,047	4,469,561	171,612
Cumin seed	lb.	180,016	801,811	6,194,654	1,011,226
Fennel seed	lb.	175,948	489,210	5,467,101	824,767
Ginger root	lb.	1,081,377	994,405	6,081,977	1,202,590
Mustard seed, whole	lb.	6,863,827	7,977,770	88,416,757	5,358,094
Nutmeg, unground	lb.	246,086	801,309	2,842,010	462,220
Origanum, whole	lb.	716,216	705,088	5,425,045	544,668
Paprika	lb.	782,884	736,247	11,319,067	594,460
Pepper, black, unground	lb.	6,960,871	10,346,806	67,125,936	3,300,894
Pepper, red, capsicum	lb.	1,060,428	1,684,210	11,382,843	1,037,841
Pepper, white, unground	lb.	816,981	496,211	4,352,427	225,487
Pimento, unground	lb.	84,989	99,240	1,060,427	
Sage, unground	lb.	486,068	239,743	2,981,612	221,924
Turmeric	lb.	845,532	972,421	3,686,104	490,557
Vanilla beans	lb.	81,363	257,559	1,716,261	141,436

CHEMICAL PRICES

WEEK ENDING NOVEMBER 14, 1986

This chemical prices section contains spot quotations and/or list prices of suppliers of chemicals and related materials on a New York or other indicated basis. The listings are based on price information obtained from suppliers. Note that posted prices do not necessarily represent levels at which transactions actually may have occurred. They do not represent bid and asked prices, nor a range of prices over the week. Price ranges may represent quotations of different suppliers as well as differences in quantity, quality and location. All matters under this heading are fully covered by copyright.

An index of weekly chemical market reports is on the back cover.

A

Abies alba, dms. ... kilo	24.00	27.00
Acetaldehyde, 99%, tanks, frt. alld. lb.	.37	–
Prices 1c. higher in West.		
Acetaminophen (see N-Acetyl-p-aminophenol)		
Acetanilide, tech, flaked, bgs. t.l., f.o.b. works ... lb.	1.29	–
Acetic acid, tech., tanks, dlvd. E ... lb.	.25	–
Acetic anhydride, tanks, dlvd. E ... lb.	.43½	–
Acetic anhydride prices 1c. higher in West.		
Acetoacetanilide, dms., t.l., dlvd. ... lb.	1.29	–
Acetoacet-o-anisidide, dms., t.l., dlvd. ... lb.	2.70	–
Acetoacet-o-chloroanilide, dms., t.l., dlvd. ... lb.	2.65	–
Acetoacet-o-toluidide, dms., t.l., dlvd. ... lb.	1.58	–
Acetoacet-m-xylidide, dms., t.l., dlvd. ... lb.	3.33	–
Acetone, tanks, dlvd. E. ... lb.	.25	–
dlvd. Zone 2 (Calif.) ... lb.	.27	–
dlvd. Zone 3 (W. of Rockies excluding Calif.) ... lb.	.27	–
Acetonitrile, tanks, frt. alld. ... lb.	.53	.54½
Acetophenetidin (see Phenacetin).		
Acetophenone, tech., tanks, f.o.b. works ... lb.	.78	.85
perfume grade, extra, cns. ... lb.	2.15	–
N-Acetyl-p-aminophenol, c.l., t.l. works ... kilo	5.95	6.64
Acetylene black, imp., 50% compressed, 12½-lb. bgs. c.l., t.l. frt. extra ... lb.	.96	–
100%, 25-lb. bgs., same basis ... lb.	.95½	–
Acetylene tetrabromide, tanks, f.o.b. works ... lb.	.97	–
Acetylsalicylic acid, USP (see Aspirin).		
Acetyltributyl citrate, bulk, f.o.b. works ... lb.	1.29	–
Acetyltriethyl citrate, bulk, f.o.b. works ... lb.	2.09	–
Acrolein, tech., tanks, works ... lb.	.62	–
Acrylamide, solid, t.l. works ... lb.	1.00	–
soln., 100% basis tanks, works. lb.	.74	.77
Acrylic acid, glacial, reg., tanks, dlvd ... lb.	.97	–
tech., tanks, frt. alld. ... lb.	.60	–
Acrylonitrile, tanks, works ... lb.	.39½	.45½
Acrylonitrile-butadiene-styrene resin, high-impact, nat., t.l., dms., dlvd. ... lb.	1.09	1.12
medium-impact, nat., same basis lb.	1.05	1.08
low-impact, nat., same basis ... lb.	.98	1.01
Adipic acid, resin grade, bulk, hopper cars, frt. equald. ... lb.	.57	–
bgs., t.l., c.l. frt. equald. ... lb.	.59	–
Agar USP, powd., 60 to 100 mesh., dms. ... lb.	8.50	9.85
Alcohol, syn. C-6 to C-10, tanks, f.o.b. works ... lb.	.38	–
C-12 to C-13, tanks, dlvd. ... lb.	.57	.59
C-14 to C-15, tanks, dlvd. ... lb.	.57	–
C-16 to C-18, tanks, dlvd. ... lb.	.60	–
Aldehyde, C-6, dms. ... lb.	4.10	5.70
C-7, dms. ... lb.	1.95	–
C-8, dms. ... lb.	4.30	9.30
C-10 dms. ... lb.	4.30	5.35
Algin (see Sodium alginate.)		
Alkali blue, dry, flushed, 110-lb. dms, dlvd. ... lb.	3.72	3.83
Alkali blue prices 1c. higher W. of Rockies.		
Allspice Guatemalan / Honduran, bgs. ... lb.	.87	–
Jamaican, bgs. ... lb.	1.06	–
Allyl alcohol, tanks, f.o.b., Bayport, Tex. ... lb.	.90	–
Allyl bromide, 500-kilo dms. 2,000 lbs. or more, works ... lb.	5.50	–
Allyl caproate, 25-lb. cns. ... lb.	3.90	4.50
Allyl chloride, tanks, f.o.b. works ... lb.	.66	–
Allyl isothiocyanate, bots. ... lb.	5.40	6.90
Almond oil, artif., bitter (see Benzaldehyde.)		
Almond oil, nat. bitter, NF f.f.p.a. bots. ... lb.	3.50	3.60
sweet ... lb.	1.24	1.50
Aloe, Cape, cs. ... lb.	2.00	–
powd., cs. ... lb.	2.25	2.76
Curacao, kgs. ... lb.	2.60	–
powd., kgs. ... lb.	3.00	–
Aloin, NF, dms. ... lb.	8.00	8.70
Alum, ammonium, tech. gran. bgs., c.l., t.l., works ... 100 lb.	35.00	–
FCC powd., fiber dms., works 100 lbs.	55.00	–
Alum, potassium, tech. gran. bgs., c.l., t.l., works ... 100 lbs.	36.00	–
FCC powd. fiber dms., works. 100 lbs.	53.00	–
Alumina, activated, gran., 100-lb. bgs., 40,000-lb. min c.l., works. ton	821.00	–
calcined, bulk, same basis ... ton	354.00	–
100-lb. bgs., same basis ... ton	360.00	–
hydrated, white, bulk, same basis ... ton	190.00	–
100-lb. bgs., same basis ... ton	224.00	–
Aluminum acetate, basic, dms., l.c.l., works ... lb.	3.25	–
Aluminum chloride, anhyd., soln., 500-600 lb. dms., c.l., t.l., works, frt. equald. ... lb.	.63	–
bulk, same basis ... lb.	.49	–
semi-bulk bins, same basis ... lb.	.52	–
Aluminum chloride, coml., soln., 32° tanks, works ... 100 lbs.	15.00	–
ret. dms., c.l., works ... 100 lbs.	12.00	–
non-ret. dms., same basis . 100 lbs.	20.00	–
Aluminum formate, dibasic, liq. 8% Al_2O_3 t.l., works ... lb.	.55	–
Aluminum hydrate (see Alumina, hydrated)		
Aluminum hydroxide, dried, gel, NF, 75-lb. dms., c.l., t.l., works. lb.	2.75	3.60
Aluminum metal, 99½% or more, 50-lb. pigs., 30,000-lb. lots, frt. alld. ... lb.	.78	–
Aluminum oxide amorphous (see Alumina, calcined).		
Aluminum paste, leafing grade, std., lining, 2,400 lb. lots, dlvd. ... lb.	1.40	–
lining, extra-fine, same basis ... lb.	1.99	2.14
Aluminum phenolsulfonate, purif., 100-kilo dms., t.l. ... kilo	6.46	–
Aluminum powder, leafing grade, std. lining, 2,400 lb. lots, dlvd. . lb.	3.17	–
extra fine, lining, same basis ... lb.	4.04	–
Aluminum stearate, bgs., c.l. ... lb.	1.25	1.36
Aluminum sulfate, coml., grd., 100 lb. bgs., c.l., works, frt. equald., basis 17% Al_2O_3 East and Gulf Coasts ... ton	205.00	–
West Coast ... ton	220.60	–
liq., tanks, N.E. same basis ... ton	145.00	–
iron-free, dry, bgs., c.l. same basis ... ton	300.00	–
liq., tanks, same basis ... ton	225.00	265.00
Aluminum sulfate, USP, gran., dms. lb.	–	.337
Aminoacetic acid, USP, dms., 20,000 lbs., f.o.b. works ... lb.	2.12	–
tech., t.l., same basis ... lb.	1.88	–
p-Aminobenzoic acid, 1,000 kilos or more, dms., f.o.b. works . kilo	9.80	10.10
2-Amino-4-chlorophenol dry and grd., 14,000 lbs. or more, frt. alld. lb.	5.79	–
Aminoethyl ethanolamine, tanks, frt. collect ... lb.	1.33½	–
N-Aminoethyl piperazine, tanks, f.o.b., frt. collect ... lb.	1.05	–
2-Amino-2-ethyl-1,3-propanediol dms., t.l. f.o.b. works ... lb.	1.82	–
2-Amino-2-methyl-1-propanol, 95%, dms., c.l., t.l., f.o.b. works . lb.	.95	–
tanks, f.o.b. works ... lb.	.89	–
o-Aminophenol, dms., f.o.b. Charlotte, N.C. ... lb.	3.95	–
p-Aminophenol, t.l. dms., f.o.b. Raleigh, N.C. ... kilo	7.15	–
p-Aminosalicylic acid, USP, 50-kilo dms., t.l. ... kilo	18.50	–
Ammonia, anhyd., fertilizer, wholesale, tanks, dlvd. Midwest terminals ... ton	186.00	170.00
tankcars, f.o.b. Gulf Coast ... ton	80.00	85.00
aqueous, 29.4% NH_3, anhyd. basis, tanks, frt. equald. E. of Rockies ... ton	260.00	315.00
Ammoniacal liquor (see Ammonia, aqueous).		
Ammoniac sal, galvanizing grade, bgs., c.l., f.o.b. works ... 100 lbs	28.60	–
Ammoniac sal. white (see Ammonium chloride coml.).		
Ammonium biborate, gran., dms., c.l. works ... lb.	.90	–
Ammonium biborate powder 15c. per lb. higher.		
Ammonium bicarbonate, 300-lb. fib. dms., c.l., works ... 100 lbs.	29.00	–
bgs., c.l. ... 100 lbs.	25.00	–
Ammonium bichromate, photo-litho grade, gran. 100-lb. dms., l.t.l. works ... lb.	2.00	–
Ammonium bifluoride, bgs., t.l., works ... lb.	.70	–
Ammonium bromide, dom. NF, gran., dms., c.l., t.l., f.o.b. works . lb.	1.31	–
Ammonium chloride, white, tech., fine gran., bgs., c.l., works ... 100 lbs.	19.00	–
USP, gran., dms. ... lb.	.40	.53
Ammonium citrate, dibasic, 250-lb. dms. f.o.b. works ... lb.	2.79	–
Ammonium dimolybdate, approx. 65%, 24,000 lbs. or more . lb.	5.49	–
Ammonium fluoborate, tech., dms., c.l., t.l., works, frt. equald. . lb.	1.79	–
Ammonium heptamolybdate, cryst., dms., 24,000 lbs. f.o.b. works ... lb.	5.67	–
Ammonium lauryl sulfate, tanks, f.o.b. works ... lb.	.29	.32
Ammonium lignin, sulfonate, bulk, f.o.b. Hoquiam, Ore. ... ton	72.00	–
Ammonium nitrate, dom., fertilizer grade, 33.5% N, bulk, S.E. dlvd. ... ton	130.00	135.00
Ammonium oxalate, tech., fine. gran. 300-lb. dms., t.l., f.o.b. works ... lb.	1.42	1.68
Ammonium pentaborate gran. bgs., c.l., works ... lb.	.76	–
Ammonium pentaborate powder 20c. per lb. higher.		
Ammonium persulfate, 225-lb. dms, 24,000 lbs. or more, f.o.b. works ... lb.	.59	–
55-lb. bgs., same basis ... lb.	.58½	–
Ammonium phosphate (see Di- and monoammonium phosphates).		
Ammonium silicofluoride, dms. c.l., t.l., works ... lb.	.30¾	–
Ammonium sulfate, lg. gran., bulk, c.l., works ... ton	80.00	90.00
std., coml., bulk, f.o.b. works .. ton	80.00	70.00
tech., bgs., c.l., t.l., works ... ton	108.00	120.00
Ammonium sulfide, liq., 40-44% tanks, 100% basis, frt. equald. . ton.	460.00	–
Ammonium sulfocyanide, tech. (see Ammonium thiocyanate).		
Ammonium thiocyanate, tech., cryst., bgs., c.l. works ... lb.	1.02	–
tech soln., 50%, tanks, frt. equald. ... lb.	.93	–
Ammonium thiosulfate, photographic, 60%, tanks, f.o.b. works .. lb.	.13	–
Ammonium zirconyl carbonate, soln., bulk ... lb.	.72	–
Amyl acetate, primary mixed isomers, tanks, dlvd. ... lb.	.57	–
Amyl alcohol, primary mixed isomers, tanks, frt. alld. ... lb.	.46½	–
Amyl cinnamic aldehyde, dms. ... lb.	2.36	2.50
p-tert-Amylphenol, bulk, works ... lb.	.91	1.03
Amyris oil, dms. ... lb.	11.00	–
Anethole, tech., dms. ... kilo	10.20	–
USP, dms. ... lb.	3.65	4.60
Angelica root oil, bots. ... kilo	700.00	–
Aniline, tanks, f.o.b. ... lb.	.33	.35½
Anise oil, dms. ... kilo	8.90	–
Anise seed, Chinese, bgs. ... lb.	1.40	–
Spanish, bgs. ... lb.	1.13	–
Turkish, bgs. ... lb.	1.10	–
Anisic aldehyde, cns., dms. ... lb.	4.80	5.40
o-Anisidine, imp., dms., dlvd. ... lb.	2.27	–
p-Anisidine, imp., cast solid, dms., works ... lb.	1.90	–
flakes, same basis ... lb.	2.25	–
Anthranilic acid, purif., 98% min., dms., t.l., frt. alld. ... lb.	1.70	–
Antimony fluoborate, liq. conc., 175-lb. dms., t.l., works ... lb.	3.02	–
Antimony metal, bulk, c.l., mines ... lb.	1.35	1.3[illegible]
Antimony oxide, high-tint, bgs., c.l., frt. alld. E. of Rockies ... lb.	1.35	1.5[illegible]
Antimony trichloride, anhyd., solid, dms., t.l. works ... lb.	3.60	–
Apomorphine hydrochloride, NF, bots. ... gm.	15.00	–
Apricot kernel oil, dms. ... lb.	2.05	–
Arabic gum, powd., bbls. ... lb.	1.95	2.1[illegible]
spray dried ... lb.	2.00	2.[illegible]
USP grade ... lb.	6.75	[illegible]
Aromatic petroleum solvents (see Solvent, naphtha petroleum, aromatic).		
Arsenic, crude (see Arsenious trioxide).		
Arylid, red (see Napthol, arylid red).		
Arsenious trioxide, 99%, bulk, c.l., f.o.b. warehouse ... lb.	.42	.4[illegible]
Asbestine (see Talc, fibrous).		
Ascorbic acid, USP, 100 kilos, dlvd. ... kilo.	11.00	–
Ash, black (see Barium sulfide).		
Asphalt gilsonite, (see Gilsonite).		
Asphalt petroleum cutback, tanks, E. Coast ... gal.	.66	–
emulsion, tanks, tankwagons, E. Coast ... gal.	.68	–
steam-refined, 40-300 penetration, tanks, tankwagon ... ton	170.00	–
steep roofing grade, bulk tankwagon ... ton	175.00	–
Aspirin, USP, cryst., powd., 250-lb. dms., c.l., f.o.b. ... lb.	1.95	–
10% starch granulation, white, 250-lb. dm, c.l., f.o.b. ... lb.	1.97	–
18% starch granulation, white, same basis ... lb.	2.80	–
Freight equald. shipt. identical quantity over standard rates from N.Y., Phila., Midland, Mich., Chicago and St. Louis.		
Atropine sulfate, USP, bots. ... oz.	10.00	11.0[illegible]
Avocado oil, dms. ... lb.	4.00	4.5[illegible]
Azelaic acid, tech., 50-lb. bgs., t.l., c.l., dlvd. ... lb.	1.23	–
Azo orange, bbls., dlvd. ... lb.	7.00	[illegible]
Azo yellow, 10 G, bgs., dlvd. E. of Rockies ... lb.	8.95	–
Azo G yellow pigment, bgs., same basis ... lb	5.85	–

B

Bacitracin, USP, non-sterile, one billion units or more ... million units	8.30	[illegible]
Barbital, NF, 50-kilo dms., dlvd. .. kilo	22.50	–
Barbital-sodium, NF, 50-kilo dms. dlvd. ... kilo	23.00	–
Barite, dry-grd., Southern, oil-color, coarse, bgs., c.l., f.o.b. mines lb.	.09	[illegible]
water-grd., white, bgs., c.l., f.o.b. works ... lb.	.13	–
unbleached, extra-fine, pigment grade, c.l., f.o.b. works .. ton	160.00	–
Barium carbonate, precip., bulk, c.l., works, frt. equald. ... lb.	.25	–
bgs., same basis ... lb.	.25½	–
photo grade, bgs., same basis ton	610.00	–
Barium chlorate, 100-lb. dms., 1-10 dm. lots, works ... lb.	1.04	–
Barium chloride, tech., cryst., bgs., c.l., works ... ton	470.00	–
anhyd. drums c.l., same basis, ton	590.00	–
Barium chloride, purif., cryst. 400-lb. dms., works ... lb.	3.75	–
Barium monohydrate, 65-lb. bgs., c.l., t.l. f.o.b. works ... 100 lbs.	46.00	–
octahydrate, cryst., bgs., same basis ... 100 lbs.	33.00	–
Barium nitrate, 100-lb. bgs., t.l., works ... 100 lbs.	32.50	–
Barium oxide, grd., dms., c.l., dlvd. ... 100 lbs.	31.25	–
tota bine, same basis ... 100 lbs.	30.00	–
Barium peroxide, 700-lb. dms., c.l., t.l., works ... lb.	.30	–
Barium stearate, bulk, t.l., f.o.b. dest. ... lb.	1.05	–
Barium sulfate, tech. (see Barite and Blanc fixe).		
Barium sulfate, USP, X-ray diagnosis grade, powd., 25 kilo bgs., 10,000 kilo lots ... lb.	.58½	–
Barium sulfide (black ash), dms., c.l., works ... ton	480.00	–
Basil Egyptian ... lb.	.97	.90
French ... lb.	.88	.80
Basil oil, Comores ... lb.	55.00	–
Basil oil, Egyptian ... lb.	82.00	–
Battery acid, t.l., f.o.b., works ... ton	52.00	70.75
Bauxite, calcined, refractory grade, 87%-88% Al_2O_3, Baltimore & Mobile ... metric-ton	229.26	–
Bay oil, NF, 50-55%, dms. ... lb.	11.00	–
Bayberry wax, bgs. ... lb.	2.70	3.00
Beeswax, refd., bleached white, bricks, 100-lb. ctns. ... lb.	3.10	3.20
white, slabs, 100-lb. ctns. ... lb.	3.06	3.10
yellow, bricks, 100-lb. ctns. ... lb.	3.00	3.10
yellow, slabs, 100-lb. ctns. ... lb.	2.85	3.05
Bentonite, dom., c.l. bags, f.o.b. works ... ton	43.50	–
Benzaldehyde, NF, dms. ... lb.	1.25	–
tech., dms., c.l., t.l. ... lb.	.73	.93
Prices are 4c. per lb. higher West of the Rockies.		
Benzene, indust. or nitration, barges, f.o.b.		
Baton Rouge, La. ... gal.	.87	–
Baytown, Tex. ... gal.	.87	–
Beaumont, Tex. ... gal.	.87	–
Catlettsburg, Ky. ... gal.	.87	–
Chicago district ... gal.	.97	–
Chocolate Bayou, Tex. ... gal.	.97	–
Clairton, Pa. ... gal.	.87	–
Corpus Christi, Tex. ... gal.	.87	–
Deer Park, Tex. ... gal.	.87	–
Houston district, spot ... gal.	.87	–
Lima, Ohio ... gal.	.90	–
Wood River, Ill. ... gal.	.97	–
Benzene hexachloride, 99% gamma isomer (see Lindane).		
Benzidine orange, powd., bgs., dlvd. lb.	4.90	8.70
liq., containers, dlvd. ... lb.	3.36	3.89
Benzidine yellow, AAA, bgs., dlvd. . lb.	5.80	8.05
AAOA, bgs., dlvd. ... lb.	7.35	7.40
AAOT, bgs., dlvd. ... lb.	6.95	6.20
Benzocaine, USP, dms., 1,000 kg. lots, f.o.b. works ... kg.	10.00	11.50
Benzodihydropyrone, dms. ... lb.	12.50	–
Benzoic acid, tech., bgs., c.l., t.l., f.o.b. works ... lb.	.55	.58
USP cryst., dms., ton lots same basis ... lb.	1.73	1.75
Benzoin gum, Sumatra, cs. ... lb.	1.80	–
Benzophenone, N.F., 1,000 lbs. or more, f.o.b. ... lb.	3.50	3.90
N.F., 1,000 kilos or more, f.o.b. ... kg.	7.45	–
tech, 1,000 kilos or more, fob works ... kgs.	4.35	–
2,2-Benzothiazyl disulfide (see Mercaptobenzothiazyl disulfide).		
Benzotriazole, flake, dms., 1,000 lbs. or more, f.o.b. works ... lb.	6.10	–
powd., dms., 1,000 lbs. or more, same basis ... lb.	8.20	–
photo-grade, dms., 1,000 lbs. or more, same basis ... lb.	9.90	–
Benzotrichloride, refd., dms. t.l., frt. equald. ... lb.	.97	–
tanks, frt. equald ... lb.	.80	–
Benzoyl chloride dms., c.l., works .. lb.	.67	.69
tanks, frt. equald. ... lb.	.74½	.75
Benzoyl peroxide, regular gran., 10,000-lb. lots or more, bgs., works, frt. equald. ... lb.	2.35	8.98
paste, 50% and 55% formulations, dms., pails, frt. equald. ... lb.	1.71	1.86
Benzyl acetate, dms. ... lb.	1.20	2.80
Benzyl alcohol, N.F. t.l. dms. frt. equald. ... lb.	1.26	1.85
tanks, same basis ... lb.	1.37	1.43
photo grade, t.l., dms., same basis ... lb.	1.40	–
tanks, same basis ... lb.	1.34	–
tech. grade, t.l., dms., same basis lb.	1.32	–
tanks, same basis ... lb.	1.28	–
Benzyl benzoate, dms. ... lb.	1.86	2.25
Benzyl chloride, tech., non-ret. dms., c.l., t.l., frt. equald. ... lb.	.59	–
tanks, f.o.b. ... lb.	.54	–
Benzyl cinnamate, 25-lb. cns. ... lb.	9.50	9.95
n-Benzyl-N,N-dimethylamine, t.l., dms., f.o.b. works ... lb.	2.30	–
Benzyl formate, dms. ... lb.	10.60	–
6-tert-Butyl-m-cresol (see Mono-tert-butyl-m-cresol).		
Benzyl isoeugenol, dms. ... lb.	15.50	–
Benzyl propionate, dms. ... lb.	3.35	–
Benzyl salicylate ... lb.	2.80	3.25
Benzylidene acetone, cns., bots. ... lb.	2.95	3.25
Bergamot oil ... kilo	44.75	–
Betahydroxynaphthoic acid (see b-Oxynaphthoic acid).		
Biotin, cryst., 500 gms. or more ... gm.	5.00	5.50
Biphenyl (see Diphenyl).		
Bismuth nitrate, purif. cryst., 100-lb. dms., frt. equald. ... lb.	10.00	–
Bismuth oxychloride, 100-lb. dms., works ... lb.	17.20	–
Bismuth subcarbonate, USP, medium powd., 225-lb. dms., works. lb.	15.31	15.50
Bismuth subgallate, purif., 100-lb. dms., works ... lb.	10.60	–
Bismuth subnitrate NF, powd., 200-lb. dms., works ... lb.	14.45	–
Bismuth subsalicylate, purif. powd., 50-100 lb. dms., works ... lb.	17.00	–
Bismuth trioxide, reagent, powd., 100-lb. dms., works ... lb.	15.00	15.45
Bisphenol-A, epoxy grade, hopper cars, dlvd. ... lb.	.97	–
polycarbonate grade, same basis lb.	.71	–
Blanc fixe, syn., imp., bags ... lb.	.20	–
Bois de rose oil, Braz., dms. ... lb.	8.75	–
BON toner (red 48) dms., frt. alld. ... lb.	7.25	8.05
(red 52) dms., same basis ... lb.	8.60	7.90
Bonemeal, steamed, dom., bgs., c.l., f.o.b. Midwest plants. ... ton	180.00	180.00
Bone phosphate, defluorinated or lime (see Defluorinated phosphate).		
Bone phosphate, precip. (see Calcium phosphate tribasic).		
Borax, tech. anhyd. 99%, bgs., c.l., works ... ton	647.00	–
bulk, c.l., works ... ton	602.00	–
Borax, tech., gran., decahydrate, 99½% bgs., c.l., works .. ton	237.00	–
bulk, c.l., works ... ton	192.00	–
tech., pentahydrate, gran. 99½%, bgs., c.l., works ... ton	265.00	–
bulk, c.l., works ... ton	220.00	–
Borax, NF (See Sodium borate).		
Boric acid, tech., gran., 99.9%, bgs., c.l., works ... ton	614.00	–
bulk, c.l., works ... ton	569.00	–
Boron trichloride, CP, 1,600-lb. cyls., works ... lb.	3.60	–
Boron trifluoride, 60-lb. cyls., t.l., f.o.b. works ... lb.	4.03	–
bulk, same basis ... lb.	3.47	–
Boron trifluoride, etherate, 500-lb. dms., t.l., f.o.b., works ... lb.	2.35	–
phenolate, 500-lb. dms., t.l., same basis ... lb.	1.65	–
Bromine, dms., t.l., works ... lb.	.67	–
bulk, 45,000-lb. min., works ... lb.	.33	.34½
purif., t.l., dlvd. ... lb.	.76	–
Bromine dlvd., prices for dms. and bulk shipped W. of Rockies, 10.- per-lb. higher. Bulk t.l. prices 1c. to 2½c.-per-lb. higher for 30,000-lb. min. and 4c. to 5½c.-per-lb. higher for 15,000-lb. min.		
Bromochloromethane, dms., c.l., f.o.b. Midland ... lb.	1.12	–
Butadiene, tanks, f.o.b. ... lb.	.12½	.13
1,4-Butanediol, tanks, f.o.b., frt. equald. ... lb.	.80	–
dms., same basis ... lb.	.88	–
Butene-1, tanks, f.o.b. works ... lb.	.29	.28
n-Butyl acetate, syn., tanks, frt. alld. lb.	.52½	–
n-Butyl acrylate, tanks, frt. alld. E. .. lb.	.88	–
n-Butyl alcohol, syn., ferment, tanks, frt. alld. ... lb.	.34	–
sec-Butyl alcohol, syn., tanks, dlvd. lb.	.385	–
tert-Butyl alcohol, syn., tanks, dlvd. E. ... lb.	.70	–
Butyl aldehyde (see Butyraldehyde)		
Butyl benzyl phthalate, tanks, frt. alld. ... lb.	.69	–
Butyl chloride, tanks, works ... lb.	.89	1.00
Butyl cyclohexyl phthalate, tanks, dlvd. ... lb.	.74	–
n-Butyl ether, dms., c.l., t.l. works.. lb.	1.85	–
Butyl isodecyl phthalate, tanks, dlvd. ... lb.	.35	–
n-Butyl lactate, tanks, f.o.b. works . lb.	1.58	–
n-Butyllithium, 15% soln., 1,000-lb. lots or more, cyls., 100% basis, dlvd. ... lb.	15.45	–
tanks, 3,000-lb. min., 100% basis, dlvd. ... lb.	14.75	–
Butyl methacrylate, tanks, frt. equald. ... lb.	.89	–
Butyl octyl phthalate, tanks, dlvd. E. ... lb.	.40	.42
Butyl oleate, dist., dms., c.l. ... lb.	.70	.92
tanks ... lb.	.60	.75
p-tert-Butylphenol, tanks works ... lb.	.70	–
Butyl phthalate (see Dibutyl phthalate).		
Butyl stearate cosmetic, dms., 77 dms. or more ... lb.	.91	.97
tanks ... lb.	.92	–
Butyl stearate tech., t.l. ... lb.	.60	.82
tanks ... lb.	.55	.58
Butylamine (see Mono-, Di- and Tributylamine).		
tert-Butylamine, dms., c.l., t.l., f.o.b. works ... lb.	1.31	–
tanks, same basis ... lb.	1.17	–
Butylated hydroxyanisole, food grade, dms., dlvd. ... lb.	8.90	9.85
Butylated hydroxytoluene, food, feed grades, c.l., t.l., bgs., dlvd.. lb.	1.24	1.30
tech., bgs., c.l., t.l., dlvd. ... lb.	1.24	1.30
1,3-Butylene glycol, tanks, dlvd ... lb.	.72	–
Butyraldehyde, tanks, dlvd. ... lb.	.29½	.39
Butyric acid, tanks, frt. alld. ... lb.	.44½	–
Butyric ether (see Ethyl butyrate).		
Butyrolactone, tanks, f.o.b. plant ... lb.	1.20	–
n-Butyronitrile, dms., c.l., dlvd. ... lb.	.93	–
tanks, dlvd. ... lb.	.54	–

C

Cadmium chloride, purif. cryst., 100-lb. dms., t.l., works ... lb.	3.73	–
Cadmium, CP, red, dark shade, bbls., 100-lb. lots, frt. alld., E. of Rockies ... lb.	11.33	19.35
light shade, bbls., same basis ... lb.	9.18	12.06
medium shade, bbls., same basis.lb.	10.69	15.20
medium-light shade, bbls., same basis ... lb.	10.28	14.60
Cadmium, CP yellow, all shades, bbls., 100-lb. lots, frt. alld., E. of Rockies ... lb.	6.10	7.07
Cadmium fluoborate, liq. conc., dms., t.l., works, frt. equald. ... lb.	2.27	–
medium-light shade, bbls., same basis ... lb.	3.22	–
Cadmium-mercury lithopone, maroon shade, bbls., frt. alld. E. of Rockies ... lb.	4.60	–
Cadmium metal ingots or sticks, ton lots, cs., dlvd. ... lb.	1.20	1.50
Cadmium nitrate, purif., flake 400-lb. dms., c.l., t.l., f.o.b. ship. pt. lb.	2.10	–
Cadmium-selenide-lithopone, orange, light shade, bbls., 400-lb. lots, frt. alld. E. of Rockies ... lb.	3.97	4.00
deep shade, bbls., same basis ... lb.	4.47	4.50
Cadmium-selenide lithopone, red, dark shade, bbls., same basis . lb.	6.77	6.80
light shade, bbls., same basis ... lb.	5.27	5.30
medium light shade, bbls., same basis ... lb.	5.72	5.75
medium shade, bbls., same basis.lb.	6.37	6.40
maroon shade, bbls., same basis.lb.	7.47	–
Cadmium-selenide lithopone, yellow, all shades, bbls., same basis . lb.	2.97	3.00
Cadmium sulfate, 50-lb. dms., any quantity, f.o.b. ship. pt. ... lb.	4.05	–
Caffeine, dom., USP, syn. cryst. anhyd., powd., 100-lb. dms., c.l., t.l., frt. alld. ... lb.	5.80	–
imp., cryst., anhyd., powd., dms., 10,000 lbs. or more ... lb.	5.80	–
Calamine, USP, dms. ... lb.	1.50	1.70
Calamus oil, dms. ... lb.	28.80	65.00
Calciferol, (see Ergocalciferol).		
Calcium acetate, purif., powd., dms., t.l., works ... lb.	.87	–
Calcium carbide, std., generator size, bulk, c.l., f.o.b., works ... ton	402.00	–
Calcium carbonate, pulverized, 325-mesh, bgs., bulk, f.o.b. works ... ton	46.00	–
slurries, 54% solids, same basis ... ton	97.00	100.00
72% solids, same basis ... ton	109.27	–
quicklime, gran., ind., bulk, works ... ton	100.93	–
Calcium carbonate, coated, bgs., c.l., works ... lb.	.0830	.1600
Calcium carbonate, precip., bgs., c.l., t.l. ... ton	385.00	446.00
Calcium carbonate precip. medium, bgs., c.l., works ... ton	110.00	150.00
precip. dense, bgs., c.l., surface treated, bgs., c.l., works .. ton	265.00	–
ultrafine, USP, bgs., c.l., works ... ton	217.00	225.00
Calcium chloride, conc., reg. grade, 77-80%, flake, bulk, c.l., works ... ton	153.00	–
100-lb. bgs., c.l., same basis ... ton	196.00	–
anhyd., 94-97%, flake or pellet, bulk, c.l., same basis ... ton	217.00	–
80-lb. bgs., c.l., same basis ... ton	279.00	–
brining grade, 80-lb. bags ... ton	286.00	–
Calcium chloride, liq., 100 percent basis, f.c., t.t., barge ... ton	99.75	–
45% same basis ... ton	118.00	–
Calcium chloride, USP, gran., 225-lb. dms., t.l., frt. equald. ... lb.	.90	–
Calcium citrate, purif., 200-lb. dms., 10,000 lbs. or more, f.o.b. works ... lb.	3.82	–
Calcium cyanamide, indust., anhyd. dms., works ... ton	400.00	460.00
Calcium gluconate, USP powd. t.l. . lb.	1.80	–
Calcium hydride, lump, dms., 25-1,000-lb. lots. works ... lb.	10.50	13.25
Calcium hypochlorite, 100-lb. dms., truckloads ship.t. E. of Rockies ... 100 lbs.	82.40	–
Calcium hypophosphite, dms., bulk, 500 kilos or more ... kilo	13.75	14.50
Calcium iodate, FCC dms., f.o.b. works ... lb.	5.50	–
Calcium iodide, 50-kilo dms., f.o.b. works ... kilo	23.85	25.85
Calcium lactate, NF, powd., pentahydrate, dms., 24,000 lbs., or more, f.o.b. works ... lb.	2.00	–
NF, gran., trihydrate, same basis. lb	2.10	–
special gran., dried grade, same basis ... lb.	2.80	–
Calcium naphthenate, liq., 4% Ca., c.l., f.o.b. plant, E. of Rockies. . lb	.85	–
d-Calcium pantothenate, USP, 100-500-kilo lots ... kilo	12.50	–
dl-Calcium pantothenate, feed grade, f.o.b. frt. alld., 250 kilos or more ... kilo	8.00	9.50
dl-Calcium pantothenate, calcium chloride complex, feed grade, 160 grams per lb., f.o.b., frt. alld., 500 lbs or more ... lb.	2.75	–
Calcium phosphate, dibasic, feed grade, 19½% P. bulk, c.l., t.l., f.o.b. works ... ton	226.00	–
Calcium phosphate, dibasic, dihydrate, USP, bgs., c.l., t.l., works, frt. equald. ... 100 lbs.	62.50	–
anhyd., USP, same basis. . 100 lbs.	71.75	–
dentifrice grade, same basis. .60 lbs.	49.90	–
Calcium phosphate, monobasic, monohydrate, food grade, bgs., c.l., t.l., works, frt. equald. ... 100 lbs.	50.60	–
anhyd., food grade, same basis ... 100 lbs.	54.95	–
tribasic, NF precip., bgs., c.l., frt. equald ... 100 lbs.	62.50	–
Calcium propionate, dms., 2,000 lbs. or more f.o.b. frt. alld. ... lb.	.50	.55
Calcium silicate, hydrated, bgs., c.l., works ... lb.	.07	–
Calcium silicate, paint grade (see Wollastonite).		
Calomel, NF, mild powd., 100-lb. dms., f.o.b. works ... lb.	8.50	–
Camphene chlorinated, 67-69% (see Toxaphene).		
Camphor, monobromated, dms., kgs. ... lb.	3.63	3.70
Camphor, syn., tech., 165-lb. dms., 5,000 lbs. or more ... lb.	1.80	–
USP, powd., 165-lb. dms., 5,000 lb. lots or more ... lb.	2.36	–
syn., refd., 1-oz. tablets, ctns. 1,000-lb. lots or more ... lb.	3.50	–
Camphor oil, yellow, 25-lb. dms ... lb.	1.65	–
white, dms. ... lb.	2.00	–
spec. grav., 1.070, dms. ... lb.	2.65	2.85
Cananga oil, Indonesian, dms. ... kilo	17.60	–
Candelilla wax, crude, bgs. ... lb.	1.90	–
refd. pure, bgs. ... lb.	2.10	–
Capric acid, coml. pure, dms. ... lb.	.60	.65
tanks ... lb.	.60	.65
Capric aldehyde (aldehyde C-10) dms., cns. ... lb.	3.96	5.35
Caprolactam monomer, flake, bgs., t.l., f.o.b. shipping point ... lb.	.87	–
molten, tanks, same basis ... lb.	.86	–
Capryl alcohol sec. 92-99% tanks, f.o.b. works ... lb.	.35	–
Caprylic acid, coml. pure tanks ... lb.	.73½	–
Capsicum (see Pepper, red).		
Capsicum oil (see Capsicum oleoresin).		
Capsicum oleoresin, NF, from dom., pepper, dms. ... lb.	17.00	–
NF, from African pepper, dms. 500,000 pungency ... lb.	8.00	–
1,000,000 pungency ... lb.	17.00	19.00
Caraway oil, Poland, dms. ... lb.	22.00	25.00
Caraway seed, Dutch, bgs. ... lb.	.58	.69
Egyptian, bgs. ... lb.	.50	.53
Carbon black, furnace, fast extruding, (FEF), bulk, c.l., works ... lb.	.2125	–
bgs., c.l. works ... lb.	.2425	–
general purpose (GPF), bulk, c.l., works ... lb.	.2075	–
bgs., c.l. works ... lb.	.2375	–
high abrasion (HAF), high structure, bulk, c.l. works ... lb.	.2300	–
bgs., c.l. works ... lb.	.2600	–

ABBREVIATIONS

THE TERMINOLOGY OF THE CHEMICAL MARKETPLACE

a/alpha
alld./allowed
amorph./amorphous
AMP/American melting point
anhyd./anhydrous
AOAC/Association of Official Agricultural Chemists
a.p.a./available phosphoric acid
approx./approximately
artif./artificial
ASTM/American Society for Testing & Materials

b/beta
Be/Baume
bbls./barrels
b.g./beta-gamma
bgs./bags
bls./bales
bots./bottles
b.p./boiling point
b.p.l./bone phosphate of lime
b.r./boiling range
bxs./boxes

C./Centigrade
cbys./carboys
c.c./cubic centimeters
CD/completely denatured
c.i.f./cost insurance freight
c.l./carload
cns./cans
coml./commercial
conc./concentrated
cp/chemically pure
cps./centipoises
cryst./crystalline
cs./cases
ctns./cartons
cyls./cylinders

d-/dextro
dbl./double
denat./denatured
dest.-dist./destructively distilled
dl/dextro-laevo
dist./distilled
distr./distributor
dlvd./delivered
dms./drums
dom./domestic

E/East
e.p./end point
equald./equalized
exp./expressed
extr./extracted

F./Fahrenheit
f.a.s./free alongside
ferment./fermentation
f.f.a./free fatty acid
f.f.c./free from chlorine
f.f.p.a./free from prussic acid
fib./fiber
f.o.b./free on board
f.p./freezing point
frt./freight

g-/gamma
gal./gallon
g.p./general purpose
gran./granular
grd./ground

i.b.p/initial boiling point
imp./imported

incl./included
indust./industrial

kgs./kegs

l-/laevo
lb./pound
l.c.l./less carload
l.t.l./less truckload
liq./liquid

m-/meta
m.a.p./mixed aniline point
mcg./microgram
mfrs./manufacturers
min./minimum
molt./molten
m.p./melting point

N/nitrogen
n-/normal
nat./natural
neut./neutral
NF/National Formulary
No./number
Nom./nominal

o-/ortho
ord./ordinary
oz./ounce

P/phosphorus
p-/para
Pac./Pacific
pf./proof
phos./phosphate
photo/photographic
pkgs./packages
powd./powdered
precip./precipitated
prod./producer
pt./point
pulv./pulverized
purif./purified

redist./redistilled
refd./refined
refy./refinery
resub./resublimed
ret./returnable

SD/specially denatured
s.d./single distilled
SE/Southeast
sec./secondary

secs./seconds
sp.g./specific gravity
shipt./shipment
soln./solution
std./standard
syn./synthetic

tanks/railroad tankcars
tech./technical
tert./tertiary
t.l./truckload
ton/refers to short ton of 2,000 pounds
TVA/temporary voluntary allowance
t.w./tankwagons

USP/United States Pharmacopeia

vis./viscosity
VM&P/varnish makers & painters

W/West
whse./warehouse
w.w./water-white

NOTE: A unit-ton is 1 percent of 2,000 pounds of the basic constituent or other standard of the material. The percentage figure of the basic constituent multiplied by the unit-ton price shown in Chemical Marketing Reporter gives the price of 2,000 pounds of the material.

CHEMICAL PRICES

WEEK ENDING NOV 14, 1986

Carbon Black, low structure, bulk, c.l. works ... lb.	.240	.260
bags, c.l. works ... lb.	.270	.290
Intermediate-super-abrasion (ISAF) ... lb.	.25	–
bgs., c.l. works ... lb.	.28	–
super-abrasion (SAF), bulk, c.l., works ... lb.	.31	–
bgs., c.l., works ... lb.	.4050	–
semi-reinforcing (SRF), bulk, c.l., works ... lb.	.210	–
bgs., c.l., works ... lb.	.240	–
Carbon black, thermal, medium, bgs. c.l., works ... lb.	.30	.30½
bulk, c.l. works ... lb.	.32	.34½
Carbon black oil, barge, f.o.b. Gulf refineries ... bbls.	10.50	12.50
f.o.b. W. coast refineries ... bbls.	10.50	12.50
Carbon disulfide, t.c., f.o.b. works ton	420.00	–
Carbon tetrachloride, CP, consumers, dms., c.l., frt. alld. ... lb.	.36	–
tech., dms., c.l., t.l., frt. alld. ... lb.	.31	–
tank transport (min. 4,000 gals.) frt. alld. ... lb.	.24	–
Carboxymethyl cellulose (see CMC).		
Cardamom oil, NF, bots. ... lb.	80.00	–
Cardamoms, decort, Guatemalan. . lb.	2.90	–
green, Guatemalan, bgs. ... lb.	5.75	7.50
Carmine, No. 40, NF, bulk, 100-lb. lots or more, dlvd. ... lb.	135.00	140.00
Carnauba wax, Parnahyba, No. 1, yellow, bgs., ton lots ... lb.	1.95	2.05
Ceara, No. 1, yellow, bgs., ton lots ... lb.	1.75	1.90
North Country, No. 2, refined, bgs., ton lots ... lb.	1.55	1.65
Carnauba wax, North Country No. 3, centrifuged, bgs., ton lots . lb	1.10	–
North Country, No. 3, refined, bgs., ton lots ... lb.	1.30	1.45
Powdered carnauba wax, 20 to 100 mesh, 20c. per lb. higher.		
b-Carotene, in vegetable oil, semi-solid suspension, 400,000 A units per gram., 33 lbs. or more.. lb.	32.75	–
b-Carotene, liq. in vegetable oil, 500,000 A units per gram., 33 lbs. or more ... lb.	40.75	–
b-Carotene, dry, beads, 10%, 157,000 A units per gram 50-lb. cns lb.	28.95	–
d-Carvone, 25-lb. dms., syn. ... lb.	48.00	–
l-Carvone ... lb.	7.00	7.25
Cascara sagrada bark, bulk ... lb.	1.00	–
Casein, imp., acid-precip., grd., 30-mesh, Australian, edible, same basis, c.i.f. ... lb.	1.45	–
Australian, indust., same basis, c.i.f. ... lb.	1.365	–
Cassella acid, 303 mol. wt., dms., frt. alld., 100% basis ... lb.	3.70	–
Cassia, Korintji "A" bgs. ... lb.	1.08	1.20
"B" bgs. ... lb.	.95	1.00
Cassia oil, Chinese, dms ... lb.	18.50	–
Castor oil, raw, No. 1, Braz. tanks. . lb.	.31	.33
USP 5-8 dms. ... lb.	.74	–
refd. deod., 5-8 dms. ... lb.	.78	–
blown, 5-9 dms. ... lb.	.76	–
dehydrated, bodied, tanks ... lb.	.74	–
dehydrated, unbodied, tanks ... lb.	.65	–
Castor oil, acids dehydrated, dms. . lb.	1.10	–
ricinoleic acid ... lb.	.79½	.83
Castor pomace, bgs., container load, f.o.b., Miami, Fla. ... ton	154.00	–
Castoreum, nat., cns. ... lb.	18.00	36.00
syn., cns. ... lb.	11.00	–
Catechol, CP, 45-kilo dms., 50-239 dms., f.o.b. ... kilo.	7.93	–
tech., bgs., t.l., same basis ... kilo.	3.71	–
Caustic potash (see Potash, caustic).		
Caustic soda (see Soda, caustic).		
Cedarleaf oil, dms. ... lb.	17.50	–
Cedarwood oil, Texas, dms., cns. .. lb.	1.75	2.50
Virginia ... lb.	4.75	–
Cedrol, prime dms. ... lb.	6.25	–
Cedryl acetate, dist., dms. ... lb.	4.25	5.30
Celery seed, Indian, bgs. ... lb.	.48	–
Celery seed oil ... lb.	37.00	–
Cellulose acetate, powd., bgs., t.l., dlvd. E. ... lb.	1.30	–
Cellulose acetate butyrate, powd., 17% butyl content, bgs., t.l., dlvd. E. ... lb.	1.75	–
38% butyl content, bgs., dlvd. E. . lb.	1.59	–
50% butyl content, bgs., dlvd. E. . lb.	1.81	–
55% butyl content, bgs., dlvd. E. . lb.	1.83	–
Cellulose gum, pure, high vis., bgs., 24,000-lb. lots or more works, f.o.b. Hopewell, Va. ... lb.	1.60	1.70
std., low or medium vis., bgs., c.l., t.l., f.o.b. Hopewell, Va. ... lb.	1.60	1.90
Cerium concentrate CeO_2, 50 lbs... lb.	1.35	–
Cerium hydroxide 90% CeO_2, dms., works ... lb.	5.40	–
77% CeO_2, dms., works ... lb.	4.20	1.60
Cerium oxide, optical grade, bgs., 50-lb. lots or more, dlvd. ... lb.	1.86	1.90
Cetyl alcohol, NF, cns., c.l., t.l., dlvd. E. lb.	.86½	1.27
Chalk (see Calcium carbonate).		
Chamomile flowers, Hungarian, cs. . lb.	4.25	4.50
Roman, cs. ... lb.	4.94	–
Egyptian, whole ... lb.	2.70	3.00
Chamomile oil, blue, Egyptian ... lb.	545.00	–
blue, Hungarian ... lb.	370.90	–
Chenopodium oil, NF, cns. ... lb.	15.00	–
Chicago acid, dry, bbls., frt. alld. ... lb.	13.80	–
Chilies (see Pepper, red).		
Chlorendic anhydride, tech., dms., t.l., works ... lb.	1.30	–
Chlorinated paraffin, 40% chlorine, bulk, dlvd., Zone 1 ... lb.	.46	.46½
50% chlorine, same basis ... lb.	.46	.47½
60% chlorine, same basis ... lb.	.48½	.48½
70% chlorine, resinous, 50-lb. bgs., c.l., dlvd., Zone 1 ... lb.	.88	–

CHEMICAL PRICES

WEEK ENDING NOV 14, 1986

Chlorinated paraffin, Zone 2 prices are 1c. per lb. higher and Zone 3 prices are 2c per lb. higher and t.l. drum prices are 5c per lb. higher
Chlorinated rubber, 5, 10, 20 cps., bgs., t.l., dlvd. ....lb. 1.66
40 cps, bgs., t.l., dlvd. ....lb. 1.62
125 cps., bgs., t.l., dlvd. ....lb. 2.60
300 cps., bgs., t.l., dlvd. ....lb. 2.76
Chlorine, tanks single units works, f.o.b., frt. equald. ....ton 195.00 200.00
Chloroacetic acid, mono, high purity, flake, 99% bulk f.o.b. works ....lb. .56
2-Chloro-4-aminotoluene, tech., liq., dms., c.l., t.l., f.o.b. works ....lb. 1.88
o-Chloroaniline, liquid, dms., c.l., f.o.b. works ....lb. 1.63
tanks, same basis ....lb. 1.55
p-Chloroaniline, solid, c.l., t.l., f.o.b. ....lb. 1.70
flake, dms., c.l., same basis ....lb. 2.00
o-Chlorobenzaldehyde, dms., t.l., works ....lb. 2.45
p-Chlorobenzaldehyde, dms., 2,000 lbs. or more, works ....lb. 3.84 3.85
o-Chlorobenzoic acid, dms. l.t.l. wks. ....lb. 3.90
p-Chlorobenzoic acid, dms., 500-lb. lots or more, works ....lb. 1.69 2.25
Chloroform, tech. tanks, dstr. dlvd. ....lb. .34½
tech., consumers, tanks, dlvd. ....lb. .34½
NF tanks, min. consumer, 4,000 gals. dlvd. ....lb. .36½
2-Chloro-4-nitroaniline, paste, commodity basis, dms., t.l., f.o.b. ....lb. 3.06
powd., same basis ....lb. 3.15
4-Chloro-2-nitroaniline, paste, 172.5 mol. wt., commodity basis, dms., t.l., f.o.b. ....lb. 2.25
powd., same basis ....lb. 2.70
o-Chlorophenol, dms., c.l., frt. equald. ....lb. 2.00 2.40
p-Chlorophenol, dms., c.l., frt. equald. ....lb. 1.25 1.70
Chloropicrin, coml., 1,500-lb. cyls., t.l., f.o.b. works ....lb. 1.25
Chlorosulfonic acid, tanks, frt. equald. ....lb. .18½
p-Chlorotoluene, tech., tanks, works ....lb. 1.00
Cholecalciferol, dry, 40,000,000 units per gram, kilo lots ....gm. 24.00
Choline bitartrate, cryst., 98% min., 50 kilo dms., f.o.b. Springfield, Mo. ....kilo 8.90
Choline chloride, feed grade, 70% aqueous, t.c., t.t., dlvd. E of Rockies ....lb. .28
60% dry supplement ....lb. .39
Choline chloride, 60% dry supplement, bulk hopper cars ....lb. .36
bgs., 50,000 lbs. min. ....lb. .40
Choline chloride, pharmaceutical, 50 kilo, lots, f.o.b. Springfield, Mo. ....kilo 5.00
Choline dihydrogen citrate, 98% min., 50 kilo lots, f.o.b. Springfield, Mo. ....kilo 6.00
Chrome green, CP extra light, bgs., dlvd. E. of Rockies ....lb. 1.68
light, bgs., same basis ....lb. 1.70
medium, bgs., same basis ....lb. 1.72
extra deep, CP, same basis ....lb. 1.74
Chrome orange, CP, bgs., dlvd. E. of Rockies ....lb. .63 .88
Chrome yellow CP bbls. dlvd. E. of Rockies ....lb. 1.09 1.16
Chromic acid, 99¾%, flake dms., c.l., frt. equald. ....lb. 1.16
grd., same basis ....lb. 1.25
Chromium acetate, soln., 7½%, dms., 500-2,000-lb. lots, works ....lb. .10
Chromium fluoride, dms., t.l., works ....lb. .81
Chromium nitrate, dms., t.l., f.o.b. ....lb. 1.45
10% metal soln., 500-lb. dms. same basis ....lb. .74 .86
Chromium oxide, hydrated, 50-lb. bgs., c.l. ....lb. 5.50
pure, bgs., c.l. ....lb. 1.90 2.00
Cinnamic aldehyde, cns., dms. ....lb. 1.85 2.45
Cinnamic alcohol, 25-lb. cns. ....lb. 4.50
Cinnamon, H2 ....lb. .95 1.00
Cinnamon bark oil, bots. ....lb. 105.00 110.00
Cinnamon leaf oil, dms. ....lb. 2.75
Citral, nat., dms. ....lb. 5.50 6.65
syn., 55-gal. dms. f.o.b. ....lb. 3.16
Citric acid, USP, hydrous, gran. 250-lb. dms., t.l. ....lb. 1.18
Citric acid, USP, anhyd., gran. 250-lb. dms., t.l., del. ....lb. .86
Citric acid anhydrous, powder 5c. higher
Citronella oil, Ceylon, dms. ....lb. 2.15 2.20
Java, dms. ....lb. 2.60
China, dms. ....lb. 2.60
Citronellal, 25-lb cans ....lb. 3.65 7.40
Citronellol drums, f.o.b. ....lb. 3.68
Citronellyl acetate, dms. ....lb. 5.50 6.50
Citronellyl formate, 25-lb. cns. ....lb. 6.85
Civet, artif., bots. ....lb. 20.00
nat. ....lb. 400.00
Clay ball, dom. air floated, bgs, c.l., Tenn. ....ton 48.00
dom., crushed, moisture-repellent, bulk, c.l., Tenn. ....ton 24.00
Clay China (see Kaolin).
Cleaners, naphtha, 140° flash tanks., New Jersey or New York, dlvd. ....gal. 1.40
Clove leaf oil Indonesian, reg. dms. ....kilo 3.15
Madagascar, reg. ....kilo 3.40
Clove bud oil ....kilo 25.00 26.00
Cloves, Brazil ....lb. 2.30
Zanzibar ....lb. 2.30
Madagascar ....lb. 2.30

CMC, technical, 98% minimum, low or medium vis., bgs., 24,000 lbs., f.o.b. Hopewell, Va., 100% basis ....lb. 1.25
detergent makers, f.o.b. manufacturing point ....lb. .64
CMC, purif., high vis., (see Cellulose gum).
Coaltar pitch, indust., liq., works ....ton 250.00 255.00
roofing, 140-155, Federal specification RP-361 Type 1, bulk works ....ton 350.00
Cobalt acetate, dms., t.l., frt. ald. ....lb. 3.61 4.25
Cobalt carbonate, powd., dms., frt. ald. ....lb. 5.61 6.16
Cobalt chloride, dms., 5,000 lbs. or more, frt. equald. ....lb. 4.15
Cobalt hydrate, dms., t.l., frt. ald. ....lb. 6.20 10.55
Cobalt metal, 99.5-99.9%, 250-kilo dms., f.o.b. NY, Chicago ....lb. 11.70
Cobalt naphthenate, liq., 6% Co., dms., dlvd. ....lb. 2.06
Cobalt nitrate, dms., t.l., frt. ald. ....lb. 2.74 3.45
Cobalt oxide, imp., black, 72-73% Co. ....lb. 9.51
Cobalt oxide, imp., 70-71% Co. ....lb. 8.76
Cobalt phosphate powd. 32.1% Co., dms., dlvd. ....lb. 1.95
Cobalt resinate (fused, 3% Co., dms. ....lb. .35½
Cobalt sulfate, cryst., bgs., 10,000 lbs. or more, frt. ald. E. ....lb. 2.81 3.54
monohydrate, dms., frt. ald. ....lb. 4.56 5.02
Cobalt tallate, 6% Co., dms., dlvd. ....lb. 2.16
Cochineal bark, bls. ....lb. .40 .45
Cocoa butter, spot ....lb. 2.14
Coconut oil (See Oils, Fats & Waxes market report).
Coconut oil acids, distilled, t.c., f.o.b. ....lb. .52 .58
double distilled, same basis ....lb. .54 .63
Cod oil, f.o.b., Gloucester, Mass., bulk ....gal. 8.50
Codeine alkaloid, NF, 25-kilo lots, kilo 900.00
Codeine phosphate, USP, cns., 25-kilo lots ....kilo 640.00
Codeine sulfate, NF cns., 25-kilo lots ....kilo 775.00
Codliver oil, NF, dms. ....gal. 5.50 7.25
Copaiba balsam, dms. ....lb. 1.50
Copaiba oil, cns., dms. ....lb. 3.75
Copper acetate, monohydrate, cryst., tech., dms., t.l., works ....lb. .71 .74
Copper bromide, (cupric) 200-lb. dms., 100,000-lbs. -per-year contracts, works ....lb. 1.34
Copper carbonate, 55% Cu, dark, dense, 50-lb. bgs., c.l., t.l., works ....100 lbs. 108.30
light, fluffy, 50 lb. bags, c.l., t.l., works ....100 lbs. 109.30
Copper chloride (cupric), anhyd., c.l., works ....lb. .90
Copper cyanide, tech. dms., 24,000-lb. lots or more ....lb. 2.30 2.82
Copper fluoborate, (cupric), liq. conc. dms., t.l., works, frt. equald. ....lb. .82
Copper gluconate, FCC grade, 25-lb. cns., frt. equald. ....lb. 6.50
Copper metal electrolytic wire bars, dlvd., domestic, basis ....lb. .62½
Copper naphthenate, liq., 8% Cu., dms., frt. ald. ....lb. 1.18
Copper nitrate (cupric), purif., flake, dms., t.l., works ....lb. .43¼
Copper oleate, solid, 6% Cu. dms., works frt ald. ....lb. .97
Copper oxide, black (cupric), dms., 60,000-lb. lots, works ....lb. 1.21
red (cuprous), dms., 97%, USN Type 1, (AA), 60,000-lb. lots, works ....lb. 1.19 1.20
red, 90%, Type 2, same basis ....lb. 1.15
Copper-8-quinolinolate, 10%, liq. emulsion, t.l., bulk, c.l. ....lb. 2.62
Copper sulfate, cryst., pentahydrate, 99% bgs., c.l., t.l. ....100 lbs. 48.45
CP, pentahydrate, cryst., dms., l.c.l., works ....100 lbs. 60.00
monohydrated, 35% Cu, dms., c.l., works ....100 lbs. 75.10
basic, bgs., c.l., works ....100 lbs. 86.30
Coriander oil, USP, dms. ....lb. 32.00 34.00
Coriander seed Moroccan ....lb. .36
Rumanian ....lb. .35 .37
Corn oil (See Oils, Fats & Waxes market report).
Cornoil, crude, fonts (soapstock), 95% acid; New York ....lb. .13½ .14
Cornoil acid, dms. ....lb. .50
tanks ....lb. .32 .40
Corn syrup 43 Be., tanks, f.o.b. works ....100 lbs. 11.22 11.43
Cortisone acetate, USP, dms., 5 kilos or more ....gram .80
Cottonseed meal (See Oils, Fats & Waxes market report).
Cottonseed oil (See Oils, Fats & Waxes market report).
Cottonseed oil, acidulated (soap stock), acid, 95%, tanks, N.Y. ....lb. .13
Cottonseed oil acids, dist., dms. ....lb. .63
tanks ....lb. .56
Coumarin, NF X, cryst., over 800-lb. ....lb.
Cream of tartar (see Potassium bitartrate).
Creosote, coaltar, grade 1, tanks, f.o.b. works ....gal. 1.15 1.18
soln., 80/20, tanks, same basis ....gal. 1.134 1.17
p-Cresidine, fused, dms., works ....lb. 4.31
m-Cresol, 9.5-98%, dms., t.l., f.o.b. ....lb. 1.71
tanks, same basis ....lb. 1.55
m,p-Cresol, 99%, dms., t.l., f.o.b. ....lb. .94
bulk, same basis ....lb. .82
o-Cresol, 99% pure, dms., t.l, f.o.b. ....lb. .87
bulk, same basis ....lb. .75
98% pure, dms., t.l., f.o.b. ....lb. .87
tanks, same basis ....lb. .75
p-Cresol, 98%, dms., t.l., f.o.b. ....lb. 1.22
bulk, same basis ....lb. .95 1.15
Cresylic acid, coaltar, dms., metapara content above 25%, resin and tricresyl phosphate grades, tanks, frt. ald. ....lb. .58
Cresylic acid, dom., metapara content 25% or less, tanks, frt. ald. ....lb. .58
Crotonic acid, 200-lb. dms., t.l., f.o.b. dlvd. ....lb. 1.60
Cryolite syn., bulk, c.l., works ....ton 510.00 580.00

Cube root, powd., 5% rotenone, basis, 50-lb. bgs., t.l., works ....lb. .60
Cumene, bulk, contract, f.o.b. ....lb. .14 .14
Cumin seed, Indian, bgs. ....lb. .95
Cyanuric acid, dms., c.l., t.l. frt. equald. ....lb. 1.16 1.37
Cyclamen aldehyde, 50% min. aldehyde content, dms. ....lb. 4.85
98.5%, dms. ....lb. 7.36 9.20
80-82%, dms. ....lb. 7.85
Cyclohexane, bulk, barges, wks. ....gal. .9825 .9925
Cyclohexanol tech., tanks, f.o.b. ....lb. .62 .66½
Cyclohexanone tech., tanks, f.o.b. works ....lb. .55½ .56½
tanks, dlvd. ....lb. .585
Cyclohexylamine, tech., tanks, works ....lb. .85

D

2,4-D acid, tech., 50-lb. bgs., c.l., t.l., works, frt. equald. ....lb. 1.10 1.25
2,4-D butyl ester, tech., 55-gal. dms., c.l., t.l., works, frt. equald. ....lb. 1.30
tanks, same basis ....lb. 1.25
2,4-D dimethylamine salt, t.c., t.l. works, frt. ald. E. ....lb. 8.05
Decyl alcohol, mixed isomers, tanks, dlvd. ....lb. .32
perfume grade, dms. ....lb. .76
Defluorinated phosphate (tricalcium), feed grade, 18% P, c.l., bulk, f.o.b. works ....ton 186.00 226.00
Denatured alcohol, ethyl, CD18, CD19, tanks, dlvd. E. ....gal. 1.67
NOTE: Tankcar sales require written authorization by Alcohol and Tobacco Tax Division.
Denatured alcohol, ethyl,
SD2B, tanks, dlvd. E. ....gal. 1.81
SD3A, tanks, dlvd. E. ....gal. 1.76½
SD23A, tanks, dlvd. E. ....gal. 1.86
SD23H, tanks, dlvd. E. ....gal. 1.89
SD29, tanks, dlvd. E. ....gal. 1.83
SD30, tanks, dlvd. E. ....gal. 1.72½
SD35A, tanks, dlvd. E. ....gal. 1.66½
Denatured alcohol, ethyl, brucine formula SD40, tanks, dlvd. E. ....gal. 1.83
ethyl, optional formula, SD40, tanks, dlvd. E. ....gal. 1.82½
For anhyd. alcohol on above formulas, prices are 1 2c. per gal. higher.
West Coast dvd. prices are the same as Eastern prices, except in Idaho, Oregon and Washington where a 6c. differential on tankcars is maintained.
Desoxyephedrine hydrochloride (See Methamphetamine hydrochloride).
Detergent alkylate, straight chain dodecylbenzene, tanks, barges, f.o.b. ....lb. .45
Dextrin, corn, canary dark, paper bgs., c.l., works ....100 lbs. 26.04
white, paper bgs., c.l., works ....100 lbs. 27.43
Dextrose, anhyd., coml., bgs., c.l., dlvd. New York ....100 lbs. 41.10
USP special, 100-lb. bgs., c.l., dlvd. New York ....100 lbs. 48.60
Dextrose, hydrated coml. bgs., c.l. dlvd. New York ....100 lbs. 24.25
Western zone ....100 lbs. 25.60
Diacetone alcohol, acetone free, tanks, dlvd. ....lb. .52
Diacetyl, flavor grade, dms. ....lb. 9.25 15.00
Diammonium phosphate, fert. grade. min. 18% N, 46% P, bulk, c.l., f.o.b. Fla. works ....ton 140.00 145.00
Diammonium phosphate, feed grade, 18% N, 20% P, bulk, c.l., f.o.b. Fla. works ....ton 240.00
bgs., same basis ....ton 260.00
Diammonium phosphate, tech. bgs., c.l., t.l., works, frt. equald. ....100 lbs. 52.60
food grade, bgs., c.l., t.l., same basis ....100 lbs. 57.75
2,4-Di-tert-amylphenol, min. 98.5%, dms., c.l., t.l., works ....lb. 1.04
tanks, works ....lb. .97
Diaryldie yellow, OT, (yellow 14), dms. ....lb. 7.00 6.00
o-Dianisidine dihydrochloride, 100%, MW 244, dms., t.l., dlvd. ....lb. 4.25
2,6-Di-tert-Butyl-p-Cresol (see Butylated hydroxytoluene)
Dibutyl fumarate, tanks, f.o.b. works ....lb. .77 .85
Dibutyl maleate tanks, f.o.b. works ....lb. .63 .64
Dibutyl phthalate, tanks, works ....lb. .54 .60
Dibutyl sebacate tanks, works ....lb. 1.72 1.89
Dibutyltartrate, dms., c.l., dlvd. ....lb. 1.12
tanks, same basis ....lb. 1.08
2,5-Dichloroaniline, flake, dms., works ....lb. 2.00
fused, dms., works ....lb. 1.80
3,4-Dichloroaniline, tech., 98%, solid, dms., c.l., t.l., f.o.b. works ....lb. 1.45 1.57
o-Dichlorobenzene, tech., 80%, dms., c.l., t.l., works ....lb. .52
tanks, same basis ....lb. .45
98% refd., dms., c.l., same basis ....lb. .54
tanks, same basis ....lb. .47
p-Dichlorobenzene, graded, 300-lb. dms., t.l., f.o.b., frt. equald. ....lb. .51 .52
tanks, liq., same basis ....lb. .43 .47
2,5-Dichloro-4-nitroaniline, dms., 10,000 lbs. or more, works ....lb. 3.30
Dichlorophenoxyacetic acid (see 2,4-D).
Dicyclohexylamine, dms., c.l., t.l., f.o.b. ....lb.
tanks, same basis ....lb. 1.36
Dicyclohexyl phthalate, bgs., c.l., t.l., frt. ald. ....lb. 1.25
Dicyclopentadiene, high-purity, 87-98%, tanks, works ....lb. .35
Diethanolamine, tanks, frt. ald. ....lb. .34 .36
Diethanolamine lauryl sulfate, tanks, dlvd. ....lb. .41
DDVP (see Dimethyl dichlorovinyl phosphate).

Diethyl barbituric acid (see Barbital).
Diethyl carbonate, tankwagons, f.o.b. works ....lb. 1.40
Diethyl ethanolamine, CP dms., c.l., dlvd. ....lb. 1.16
tanks, dlvd. ....lb. 1.10
Diethyl ethanolamine tech., 8c. per lb. lower.
Diethyl oxalate, dms., c.l., f.o.b. works ....lb. 1.90
odorless cosmetic grades, t.l. works ....lb. .86
Diethyl phthalate, tanks, f.o.b. ....lb. .97½
Diethyl sulfate, tanks, frt. ald. E. ....lb. .56
Diethyl thiourea, dms., c.l., t.l. works ....lb. 2.46
Di-2-ethylhexyl adipate (see Dioctyl adipate).
Diethyl toluamide. 95-97% min. meta isomer. dms., t.l., f.o.b. works ....lb. 2.75
N,N-Diethyl-m-toluidine, tech., liq., dms., c.l., f.o.b. ....lb. 3.16
tanks, same basis ....lb. 3.10
Diethylamine, dms., c.l., dlvd. ....lb. 1.15
tanks, same basis ....lb. 1.02
N,N-Diethylaniline, dms., c.l., t.l., f.o.b. works ....lb. 1.83
tanks same basis ....lb. 1.75
Diethylbenzene, tanks, f.o.b. works ....lb. .92
Di-2-ethylhexyl azelate (see Dioctyl azelate).
Di-2-ethylhexyl phthalate (see Dioctyl phthalate).
Diethylene glycol, tanks, dlvd. E. ....lb. .29½ .31
Diethylene glycol monobutyl ether, dms., c.l., frt. ald. E. ....lb. .65
tanks, frt. ald. E. ....lb. .57
Diethylene glycol monoethyl ether, dms., c.l., frt. ald. E. ....lb. .64
tanks, frt. ald. E. ....lb. .56
Diethylene glycol monomethyl ether, dms., c.l., frt. ald. ....lb. .62
tanks, frt. ald. ....lb. .54
Diethylene glycol monobutyl ether acetate, dms., c.l., dlvd. E. ....lb. .80
tanks, dlvd. E. ....lb. .72
Diethylene glycol monoethyl ether acetate, dms., c.l., frt. ald. E. ....lb. .80
tanks, frt. ald. E. ....lb. .72
Diethylenetriamine, tanks, f.o.b. works ....lb. 1.50
Diethylenetriamine pentaacetic acid, pentasodium salt solution, tank-cars/tanktrucks, frt. equald. ....lb. .45
Digitoxin, USP, imp., bots. ....gram 2.60
Diglycol laurate, dms., ton lots ....lb. .32½
Diglycol stearate, dms., t.l. ....lb. .62
Dihydrostreptomycin sulfate, bulk kilo ....lb. 1.10
Dihydrostreptomycin sulfate, bulk kilo 48.00
Dihydroxyacetone, 50-kilo lots, works ....lb. 40.00
Di-isobutyl ketone, tanks, dlvd. ....lb. .60
Di-isobutyl phthalate tanks, dlvd. E. ....lb. .55
Di-isobutylene, tanks, f.o.b. Houston ....lb. .37
Di-isodecyl phthalate, tanks, dlvd. ....lb. .40
Di-isononyl phthalate, tanks, dlvd. ....lb. .40
Di-iso-octyl azelate, tanks, dlvd. E. ....lb. .98
Di-iso-octyl phthalate, tanks, dlvd. ....lb. .40
Di-isopropanolamine, dms., c.l., frt. ald. ....lb. .66½
tanks, same basis ....lb. .58½
Di-isopropylamine, dms., c.l. dlvd. ....lb. 1.17
tanks, same basis ....lb. 1.07
Dilauryl 3,3-thiodipropionate, dms., t.l., frt. ald. ....lb. 1.89
Dill oil, USP, dms. ....lb. 7.00
Dimethyl anthranilate, dms. ....lb. 15.80
Dimethyl benzyl carbinyl acetate, 25-lb. dms. ....lb. 6.65
Dimethyl carbonate, dms, t.l., f.o.b. works ....lb. .90
Dimethyl dichlorovinyl phosphate, 55-gal. dms., f.o.b. ....lb. 1.50
Dimethyl ethanolamine, anhyd., dms., c.l., dlvd. E. ....lb. 1.15
tanks, dlvd. E. ....lb. 1.07
Dimethyl ether, aerosol grade, tanks, f.o.b. works ....lb. .38
Dimethyl phthalate, tanks, f.o.b. works ....lb. .65
Dimethyl sebacate, tanks, f.o.b. works ....lb. 2.46
Dimethyl sulfate, ref. dms., c.l., f.o.b. works ....lb. .57
tanks ....lb. .46
Dimethyl sulfide, tanks, works ....lb. .58
Dimethyl sulfoxide, tanks, works ....lb. .76
Dimethylacetamide, bulk f.o.b. works ....lb. .87½
Dimethylamine, 25% soln., tanks, frt. equald., 100% basis ....lb. .65½
40% soln., tanks, frt. equald., 100% basis ....lb. .63½
anhyd., tanks, frt. equald. ....lb. .64½
N,N-Dimethylcyclohexylamine, dms., t.l. dms. ....lb. 1.23
N,N-Dimethylformamide, dms., c.l., t.l., f.o.b., works ....lb. 1.11
tanks, same basis ....lb. .57
2,4-Dinitroaniline, tone-lots, f.o.b. ....lb. .49
Dinitrotoluene, orange toner, CP, bgs. dlvd. E. of Rockies ....lb. 1.22
2,4-Dinitrochlorobenzene, crystallizing at 47°, t.l., f.o.b. Charlotte, N.C. ....lb. 6.20
2,4-Dinitrophenol, 250-lb. dms., f.o.b. Charlotte, N.C. ....lb. .98
Dinitrotoluene, mix, tech., f.o.b. works ....lb. 1.96
2,4-Dinitrotoluene, dms., c.l., t.l., works ....lb. .30
tanks, works ....lb. .82
Dioctyl adipate, tanks, frt. ald. E. ....lb. .55
Dioctyl azelate, tanks, dlvd. E. ....lb. 1.20
Dioctyl phthalate, tanks, dlvd. ....lb. .61
Dioctyl sebacate, 99%, tanks, f.o.b. works ....lb. .50
1,4-Dioxane, tanks, frt. ald. E. ....lb. 1.47
t.l., same basis ....lb. 1.17
Dipentaerythritol, bgs., c.l., t.l., dlvd. ....lb. 1.21
Dipentene steam-dist., tanks, f.o.b. Fla. works ....lb. 1.42
sulfate turpentine derived, tanks ....lb.
Dip oil (see Tar acid oil).
Diphenylguanidine hydrochloride, USP, dom., 1,000-kilo lots, dms. ....lb.
Diphenyl, 99.9%, bgs., c.l., works ....lb.
tanks, works ....lb.

Diphenyl oxide, tech. grade, tanks ....lb. 1.11 1.20
Diphenylamine, refd., flake, bgs., t.l., works, frt. equald. ....lb. 1.25
molten, tanks, works ....lb. 1.00
octylated, flake, bgs., t.l., f.o.b. works ....lb. 7.68
Diphenylguanidine, bgs., c.l., t.l. f.o.b. works ....lb. 2.52
Diphenylhydantoin-sodium USP, kilo ....lb. 5.00 5.60
Diphenylmethane 4,4-di-isocyanate, polymeric, bulk, c.l., min. frt. ald. ....lb. .91
Dipropylene glycol, tanks, frt. ald. ....lb. .45
Dipropylene glycol monomethyl ether, dms., c.l., dlvd. ....lb. .54
tanks, same basis ....lb. .46
Dicyclohexylamine, powd., dms., t.l., frt. ald. ....lb. 2.82
Dodecylphenol tech., solid, dms., t.l., frt. ald. ....lb. 3.11
Dodecyl phthalate, tanks, dlvd. ....lb. .64 .65
Dodecylbenzene, 100% basis, tanks works ....lb. .61 .65
dms., 100% basis ....lb. 2.75 2.60
Dodecyl mercaptan, tech., tanks, f.o.b. ....lb. 3.00 2.70
Dodecenyl succinic anhydride, dms., c.l., t.l., dlvd. ....lb. .76½
Dodecylbenzene (see Detergent Alkylate).
Dodecylphenol, tanks, min. frt. ald. E. ....lb. .88
Dyes, coaltar, certified colors for food, drugs and cosmetics, 100 lb. or over, frt. prepaid or ald. ....lb. .46 .53
Blue, FD&C No. 1 ....lb. 21.20 22.80
No. 2 ....lb. 29.15 29.22
Green FD&C No. 3 ....lb. 49.50 55.00
Red, FD&C No. 3 ....lb. 24.00 24.50
Yellow, FD&C No. 5 ....lb. 7.45 7.85
No. 6 ....lb. 6.45 6.75
Dyes, coaltar, certified colors for drugs and cosmetics, 100-lb. lots dlvd.
Green D&C No. 5 ....lb. 36.50
No. 6 ....lb. 42.80
Red, D&C No. 4 ....lb. 16.66
No. 17 ....lb. 38.90
No. 19 ....lb. 38.25
No. 21 ....lb. 12.45
No. 22 ....lb. 59.95
No. 27 ....lb. 46.85
No. 28 ....lb. 21.00
No. 30 ....lb. 20.55
Yellow, D&C No. 7 ....lb. 46.80 46.85
No. 11 ....lb. 35.25
Dyes, coaltar, for general use in cloth and paper dyeing (by Color Index Name) f.o.b. works
[illegible dye listings] 5.75 5.48 16.85 14.13 6.55 22.12 3.72 4.00 4.30 6.15 5.13 8.85 5.45 4.50 8.75 12.22 5.89 6.16 16.40 4.42 9.55 6.90 6.60 10.95 10.10 4.36 9.25 8.45 2.98 4.26 7.23 8.15 7.98 6.16 0.15 6.85 8.25 2.47 11.25 4.69 1.75 3.03 8.75 14.40 4.26 21.00 3.85 6.84 4.91 3.77 7.85 17.26 10.05 22.80 4.10 5.60 5.66

Epinephrine base, syn., USP, bots., 100-gram lots ....gram .60
Epoxy resin, liquid, bulk tanks, dlvd. ....lb. 1.31 1.41
Solid, bgs., t.l. ....lb. 1.26½ 1.33½
Epsom salt (see Magnesium sulfate).
Erythorbic acid, powd., gran., 100 lb. dms., t.l. or mixed t.l. f.o.b. works ....lb. 4.10 4.25
Ester gum, gum-rosin type, dms., c.l., dlvd. E., Md., Ky., E. States, Minneapolis, N.C., Ohio, St. Louis, St. Paul, Va., W. Va. ....lb. .75
Ester gum, wood-rosin type, dms., c.l., same basis ....lb. .43 .46
Ethyl acetate, syn., 85-88%, tanks, dlvd. ....lb. .41 .41½
99%, tanks, dlvd. ....lb. .41½ .42½
Ethyl acetoacetate dms., c.l., dlvd. ....lb. 1.13
tanks, dlvd. ....lb. 1.05
Ethyl acrylate, tanks, frt ald. ....lb. .68
Ethyl alcohol, syn., 190 pf., USP tax free, tanks, dlvd. E. ....gal. 1.55
Ethyl alcohol, absolute, 200 pf., tax free prices 12c. higher than 190 pf., tax free.
Ethyl alcohol, fermentation, tanks, f.o.b. works ....gal. 1.06 1.28
Price range attributable to various state tax incentives.
Ethyl alcohol, denat. (see Denatured alcohol, ethyl).
Ethyl p-aminobenzoate, NF (see Benzocaine).
Ethyl benzoate, dms. ....lb. 1.35 1.50
Ethyl bromide, tech., 98%, dms., c.l., frt. ald. E. ....lb. .76
Ethyl butyrate, dms ....lb. 1.35 1.50
Ethyl cellulose, standard vis., 7 cps. bgs., t.l., frt. equald. E. ....lb. 4.55
standard vis., 10, 20, 45, 100 cps., t.l., frt. equald. E. ....lb. 4.17 4.22
medium vis., 50, 70, 100 cps., t.l., frt. equald. E. ....lb. 4.25
USP vis., 7 cps bgs., t.l., frt. equald. E. ....lb. 4.88
USP 10, 20, 45, 100 bgs., t.l., frt. equald. E. ....lb. 4.69 4.66
VSP (medium) 50, 70, 100 bgs., t.l., frt. equald. E. ....lb. 4.51
Ethyl chloride, tech., cyls., frt. ald. ....lb. .26 .28½
tanks, dlvd. ....lb. .24 .26½
Ethyl chloroformate, dms. ....kilo 41.00
Ethyl ethanolamines, mixed, dms., t.l., dlvd. E. ....lb. 1.23
tanks, dlvd. ....lb. 1.15
Ethyl ether, refined, tanks, f.o.b. ....lb. .46
Ethyl hexanoate, dms. ....lb. 4.25 4.75
2-Ethylhexoic acid, dms., c.l., t.l., dlvd. E. ....lb. .63
tanks dlvd. E. ....lb. .57
2-Ethylhexyl acrylate, straight or mixed, tanks, frt. ald. E. ....lb. .79.5
2-Ethylhexyl alcohol, tanks, dlvd. ....lb. .35
Ethyl iodide, dms., works ....lb. 8.25
Ethyl lactate, syn. 55-gal. dms. ....lb. 10.60
Ethyl linalyl acetate, syn., 55-gal. dms. ....lb. 10.85
Ethyl methacrylate, tanks, frt. equald. ....lb. 1.06
n-Ethyl morpholine, dms., t.l., frt. ald. ....lb. 2.00
tanks, same basis ....lb. 1.92
n-Ethyl-a-naphthylamine, dms., works ....lb. 1.04
Ethyl oxalate (see Diethyl oxalate).
Ethyl parathion (see Parathion, ethyl).
Ethyl silicate dist. (see Tetraethyl orthosilicate).
Ethyl silicate, 40% avail. SiO_2, dms., t.l., f.o.b. works ....lb. 1.45 1.46
tanks, f.o.b. works ....lb. 1.39
N-Ethyl-m-toluidine, tech., liq., dms., c.l., f.o.b. ....lb. 3.16
tanks, same basis ....lb. 3.10
N-Ethyl-o-toluidine, dms. ....lb. 2.65 2.90
Ethyl vanillin 100 lb. dms., 500 lbs. or more ....lb. 13.60
25 lb. dms., 500 lbs. or more ....lb. 13.75
100 lb. dms., less than 500 lbs. ....lb. 14.00 14.50
Ethylamine (see Mono-Di- and Tri-).
N-Ethylaniline, dms., c.l., t.l., f.o.b. works ....lb. 1.66
tanks, same basis ....lb. 1.56
Ethylbenzene, bulk, f.o.b. Houston, Tex. ....lb. .22 .23
Ethylene, contract, dlvd. ....lb. .18 .18½
Ethylene brassylate, dms. ....lb. 18.00 18.25
Ethylenediamine, 99%, tanks, f.o.b. works ....lb. 1.50 1.305
Ethylenediamine dihydrochloride ....lb. 7.55 9.25
Ethylenediamine tetraacetic acid, tetrasodium salt, soln., t.c., t.t., frt. equald. ....lb. .36½
Ethylene dibromide dms., c.l., frt. ald. ....lb. .38 .46
tanks, frt. equald. ....lb. .32 .42
Ethylene dichloride, tanks, f.o.b. works ....lb. .17 .17¼
Ethylene glycol, indust., tanks, frt. ald. ....lb. .31
Ethylene glycol, monobutyl ether, tanks, dlvd. E. ....lb. .41½
Ethylene glycol monoethyl ether, tanks, dlvd. E. ....lb. .51
Ethylene glycol monobutyl ether acetate, tanks, dlvd. ....lb. .64½
Ethylene glycol monoethyl ether acetate, tanks, frt. ald. E. ....lb. .55½
Ethylene glycol monomethyl ether acetate, tanks, dlvd. E. ....lb. .43
Ethylene oxide, tanks, f.o.b. ....lb. .35 .45
Ethylene trichloride (see Trichlorethylene).
Eucalyptol, NF, dms. Portuguese ....kilo 7.80
Eucalyptus Citriodora Oil, Chinese ....kilo 3.05
Eugenol, USP, dms. ....lb. 7.55

E

F

Fennel oil, sweet, USP, cns. ....lb. 9.00
Fennel seed, Egypt ....lb. .58 .58
Indian ....lb. .56 .65
Fenugreek seed, Indian, bgs. ....lb. .25 .26
Ferric chloride anhyd., tech., 350-lb. dms., t.l., works ....100 lbs. 36.00
Ferric chloride, 42 Be. photo grade dms., c.l., works ....100 lbs. 9.10

Ferric chloride, sewage grade, 100 percent basis, f.o.b. works, tank works ....ton 176.00 255.00
Ferric nitrate, cryst., dms., t.l., f.o.b. ....lb. .64
Ferric oxalate, tech., gran., 50-lb. dms., f.o.b. works ....lb. 1.66
Ferric oxides (see Iron Oxides).
Ferric phosphate, FCC grade, insoluble powder, dms. 10,000 lbs. ....lb. 1.10 1.15
Ferric pyrophosphate, soluble, purif., pearls, 50-lb. dm. ....lb. 1.11
Ferric resinate, precip., 6.75% Fe dms., ton lots frt. ald. ....lb. .45
Ferric sulfate, partly hydrated, 100-lb. bgs., c.l., works ....ton 141.00
bulk works ....ton 117.00
Ferric ammonium citrate, NF, brown, green gran. 100 lb. dms., 2,000 lb. min., f.o.b. shipping pt. ....lb. 2.00 2.65
2c. per pound surcharge for shipments W. of Denver
Ferro-ammonium sulfate, fine gran., 250-lb. dms., t.l., f.o.b. works E. ....lb. .42
Ferric hydroxyethylene diaminetriacetic acid, industrial grade, sodium salt soln., 4.5% Fe, t.c., t.t., f.o.b. works ....lb. .55
agricultural grade, sodium salt solution, 5% Fe, t.c., t.t., f.o.b. works ....lb. .64
Ferrous fluoborate liq. conc., dms., t.l., works, frt. equald. ....lb. .64
Ferrous gluconate, NF, t.l., works E. ....lb. 2.25
Ferrous naphthenate, liq., 6%, Fe., dms., dlvd. ....lb. 1.17
Ferrous sulfate, moist, bulk, t.l. f.o.b. works ....ton 30.00
heptahydrate, gran., bulk, t.l., f.o.b. works ....ton 145.00 150.00
monohydrate, gran., bulk, t.l., f.o.b. works ....ton 170.00 180.00
USP, powd., 400-lb. dms. ....lb. .48
cryst., 250-lb. dms. ....lb. .61
Fir oil, Canada dms. ....lb. 10.00
Siberia, dms. ....lb. 12.75
Fish oil, refd., alkali, tanks, c.l. ....lb. .26
kettle-bodied, tanks ....lb. .32 .38
light, cold-pressed, dms., c.l. ....lb. .34
tanks ....lb. .28
Fishmeal, dom., menhaden, 60% protein grd., bulk, f.o.b. Atlantic port ....ton 285.00
f.o.b. Gulf port ....ton 290.00
Imp., Chilean, 65% protein min., f.o.b., frt. ws whse., f.o.b. Atlantic and Gulf ports ....ton 285.00
Fluoboric acid, dms., t.l., works, frt. equald. ....lb. .70
Fluorocarbon, No. 11 bulk, tanks, dlvd. ....lb. .57 .64
No. 12, bulk, same basis ....lb. .66 .74
No. 22, bulk, same basis ....lb. 1.05 1.14
No. 113, bulk, same basis ....lb. .86 .93½
No. 114, bulk, same basis ....lb. 1.02 1.06
Fluosilicic acid (see Hydrofluosilicic acid).
Formaldehyde, 37% methanol free (uninhibited) dlvd., gulf ....lb. .088 .0905
44-45% (1% methanol) tanks, dlvd. ....lb. .1015 .1065
37% (inhibited 7% methanol, dlvd. ....lb. .0945 .1025
37% (inhibited 11-15% methanol) tanks, dlvd. ....lb. .1055 .1060
Formamide, tanks, f.o.b. ....lb. .39
dms., same basis ....lb. .44
Formic acid 90% tanks, f.o.b. works ....lb. .36½
85% dms., c.l., works ....lb. .51½
Fructose, cryst., 15,000 kilos or more, dms. ....lb. .90 1.03
Fumaric acid, food grade, bgs. t.l., frt. equald. E. ....lb. .75½ .77½
tech. grade, bgs., t.l., f.o.b. frt. equald. ....lb. .62½
Furfural, tanks, f.o.b. Cedar Rapids, Iowa, and Belle Glade, Fla. ....lb. .75
Furfuryl alcohol, tanks, f.o.b. Memphis, Tenn. and Omaha, Neb. ....lb. .72

G

G salt, dms., frt. ald. 100% basis ....lb. 2.30
Gallic acid, 400-kilo lots ....kilo 23.08
Garlic oil, dms., Egyptian ....kilo 100.00 110.00
Gelatin, edible, 100 AOAC test, dms., t.l., dlvd.
125 AOAC test, dms. l.t.l. ....lb. 1.50 1.75
150 AOAC test, dms. l.t.l. ....lb. 1.75 1.85
175 AOAC test, dms. l.t.l. ....lb. 1.85 1.95
200 AOAC test, dms. l.t.l. ....lb. 1.95 2.05
225 AOAC test, dms. l.t.l. ....lb. 2.05 2.15
250 AOAC test, dms. l.t.l. ....lb. 2.10 2.25
275 AOAC test, dms. l.t.l. ....lb. 2.20 2.35
300 AOAC test, dms. l.t.l. ....lb. 2.30 2.45
2.65 2.65
Gentian violet (see Methyl rosaniline chloride).
Geraniol, syn., 90-92%, dms. ....lb. 6.25
nat., 90-92% dms. ....lb. 3.50
syn. 98-99%, dms. ....lb. 5.75
Geranium oil, Moroccan ....lb. 45.00
Bourbon ....lb. 55.00
Chinese ....lb. 22.00
Egypt ....lb. 22.00
Turkish (see Palmarosa oil).
Geranyl acetate, dms. ....lb. 5.44 5.00
nat., dms. ....lb. 10.95
Geranyl formate, syn. dms. ....lb. 6.60
nat., dms. ....lb. 16.95
Gilsonite, g.s. bulk, c.l., f.o.b. Bonanza, Utah ....ton 180.00
selects, same basis ....ton 180.00
Ginger, Cochin, bgs. ....lb. .63 .65
Jamaica, bgs. ....lb. .52 .53
Ginger oil, Chinese ....kilo 35.00 44.00
Ginger oleoresin, NF, bots. ....kilo 35.00
Glauber's salt (see Sodium sulfate).
Gluconic acid tech. 50% dms., t.l., f.o.b. works ....lb. .60
tanks, same basis ....lb. .44

CHEMICAL PRICES

WEEK ENDING NOV 14, 1986

Glue, bone, extracted, green, jelly-grams, bgs., c.l. ....lb.
85 jellygrams, bgs., c.l., f.o.b. ....lb. .66
115 jellygrams, bgs., c.l., f.o.b. ....lb. .78
135 jellygrams, bgs., c.l., f.o.b. ....lb. .77
164 jellygrams, bgs., c.l., f.o.b. ....lb. .78
192 jellygrams, bgs., c.l., f.o.b. ....lb. .87
220 jellygrams, bgs. c.l. f.o.b. ....lb. .93
Glue, hide,
106 jellygrams, bgs., t.l., f.o.b. ....lb. .80
135 jellygrams, bgs., t.l., f.o.b. ....lb. .85
164 jellygrams, bgs., t.l., f.o.b. ....lb. .90
192 jellygrams, bgs., t.l., f.o.b. ....lb. .95
222 jellygrams, bgs., t.l., f.o.b. ....lb. 1.00
251 jellygrams, bgs., t.l., f.o.b. ....lb. 1.05
283 jellygrams, bgs., t.l., f.o.b. ....lb. 1.10
315 jellygrams, bgs., t.l., f.o.b. ....lb. 1.15
347 jellygrams, bgs., t.l., f.o.b. ....lb. 1.20
379 jellygrams, bgs., t.l., f.o.b. ....lb. 1.25
411 jellygrams, bgs., t.l., f.o.b. ....lb. 1.30
444 jellygrams, bgs., t.l., f.o.b. ....lb. 1.35
477 jellygrams, bgs., t.l., f.o.b. ....lb. 1.40
Glutamic acid, 99½% dms., 100-lb. lots, frt. ald. ....kilo 6.65
Glycerine, nat., refd., USP, CP 99½% tanks, dlvd. ....lb. .66½
USP, CP, nat. 96%, tanks, dlvd. ....lb. .67¼
Syn. 99%, tanks dlvd. ....lb. .69¼
Syn. 96.5%, tanks dlvd. ....lb. .91
Glycine (see Aminoacetic acid).
Glyceryl guaiacolate. 100-lb. fib. dms., f.o.b. ....kilo 14.50
Glycolic acid (see Hydroxyacetic acid)
Glyoxal 40% soln., bulk, tanks, dlvd. ....lb. .44½
Grapefruit oil, Fla., dms. ....lb. 3.00
Calif., dms. ....lb. 3.00
Israel ....lb. 3.00
Graphite, amorph, powd., bgs., dms., ex whse. ....lb. .16 .40
cryst., 88-90% powd., bgs., dms., ex whse. ....lb. .30 .60
Graphite, cryst., 90-92% powd., bgs., dms., ex whse. ....lb. .40 .75
95-96% powd., bgs., dms., ex whse. ....lb. .60 .80
Graphite, amorph, cryst., 87% and up, powd., bgs., dms., ex whse. ....lb. .80 1.20
Graphite, flake, No. 1, 90-95%, bgs., dms., ex whse. ....lb. .65 .75
No. 2, 80-95%, bgs., dms., ex whse. ....lb. .65 .75
Grease (See Oils, Fats & Waxes market report)
Grease oil (See Lard oil).
Guaiacol, tech., 500-lb dms., 24,000 lb. min., f.o.b. Wellingford, Conn. ....lb. 2.70
Guaiacwood oil, dms. ....lb. 3.75
Guar gum, edible, bgs., c.l., f.o.b. ship't. pt. ....lb. .50 .75
Indust., bgs., high viscosity, c.l., same basis ....lb. .50 .85

H

Heliotropin, dms. ....lb. 6.00 6.25
Hemlock oil (see Spruce oil).
Henbane leaves, bls. ....lb. .55
Heptane, indust., tanks, f.o.b. Beaumont, Tex. ....gal. 1.07
95%, tanks, f.o.b. Houston, Tex. ....gal. 1.18
Heptanoic acid, syn., tanks, f.o.b. ....lb. .65
1-Hexadecanol, syn., tanks, f.o.b. ....lb. .43½
Hexahydrophthalic anhydride, tech. dms., t.l., f.o.b. works ....lb. 1.42
Hexamethylenetetramine, gran. bgs., c.l., t.l., works ....lb. .55
gran. dms., c.l., t.l., works ....lb. .59
pdr. bgs., c.l., t.l., works ....lb. .60
powd. dms. c.l., t.l., works ....lb. .63
Hexane, indust., tanks, works ....gal. 1.01 1.15
85%, tanks, f.o.b. Houston, Tex. ....gal. 1.12
1-Hexanol, syn., tanks, f.o.b. ....lb. .50
Hexyl alcohol, mixed isomers, tanks ....lb. .32
p-Hexyl methacrylate, dms., c.l., works ....lb. .76½
Hexylene glycol, tanks, dlvd. ....lb. .50
Hexylresorcinol, USP, dms., 25-lb. lots or more, frt. ald. ....lb. 30.00
Homatropine hydrobromide, USP, 10-100-oz. lots, bots. ....oz. 10.25 11.30
Homatropine methylbromide, USP, 10-250 oz. lots, bots. ....oz. 9.70 10.70
Horehound herb, bls. ....lb. .25 .28
Hydrazine hydrate, 85%, c.l., frt. ald. ....lb. 1.61
55-gal. dms., t.l., frt. ald. ....lb. 1.61
Hydriodic acid, purif., 47%-57%, 2-cbys., f.o.b. works ....lb. 7.60
Hydroabietyl alcohol, tech., solid. dms., c.l., f.o.b. zone 1 ....lb. .65
tanks, f.o.b. zone 1 ....lb. .60
Hydrobromic acid, 48% dms., c.l. t.l. f.o.b. ....lb. .38½
Hydrochloric acid, anhyd. (see Hydrogen chloride).

CHEMICAL PRICES

WEEK ENDING NOV 14, 1986

Product	Price	Price
Hydrochloric acid, 20° Be, tanks, works, East ... ton	55.00	85.00
Midwest ... ton	60.00	70.00
Gulf Coast ... ton	57.00	-
West Coast ... ton	90.00	105.00
22° acid, same basis, East ... ton	98.00	75.00
Midwest ... ton	66.00	70.00
Gulf Coast ... ton	63.50	-
West Coast ... ton	100.00	115.00
NOTE: Prices vary and are either freight collect freight equalized depending on producer and location.		
Hydrocortisone acetate, micronized, dms., 25 kilos or more . gram.	.70	-
Hydrocortisone, alcohol, micronized, dms., 25 kilos or more . gram.	.70	-
Hydrofluoric acid, anhyd. (see Hydrogen fluoride)		
Hydrofluoric acid, aqueous. 70% tanks., f.o.b. frt. equald ... 100lbs.	43.00	-
Hydrofluosilicic acid, 15-gal. dms., t.l., works, 30% basis ... ton	-	-
tanks. 100% basis, works ... ton	190.00	210.00
Hydrogen bromide, anhyd. cyls., extm, 30,000-lbs., f.o.b. works. . lb.	7.00	-
Hydrogen chloride, anhyd., 50-lb. cyls., c.l., works ... lb.	.95	-
800-lb. cyls., c.l., same basis. . lb.	.52	-
Hydrogen chloride, anhyd., tube trailers, seller's trailer, min. 100,000 lbs. a year ... lb.	.37	-
tube trailers, buyer's trailer ... lb.	.27	-
Hydrogen chloride anhyd., tanks, works ... ton	270.00	-
Hydrogen cyanide, liq., 99.5%, tanks, works ... lb.	.50	-
Hydrogen fluoride, anhyd., tank cars c.l., f.o.b., frt. equald ... lb.	.6675	-
Hydrogen peroxide, 35% tech., tanks, works, ft. equald ... lb.	.2325	-
50% tankcars, frt. equald ... lb.	.3225	-
70% tankcars frt. equald ... lb.	.45	-
Hydrogen sulfide, liq., 99.25% min. seller's tanks, works ... lb.	.12	.13
170 lb. cylinders ... lb.	2.27	-
Hydroquinone, photo grade, consumers. c.l., t.l., divd ... lb.	2.54	-
tech., dms. c.l., divd ... lb.	1.95	-
Hydroxyacetic acid, tech., 70%, tanks, Belle, W. Va ... lb.	.49½	-
Hydroxylammonium sulfate, dms., t.l., f.o.b. ... lb.	.83	-
p-Hydroxybenzene sulfonic acid (see p-Phenolsulfonic acid).		
Hydroxybutyl methylcellulose (visc. 12,000 cps.) 50 lb. bags, tl., cl. 30,000 lb. min., divd., zone 1 ... lb.	2.10	-
Hydroxycitronellal dimethyl acetal, dms ... lb.	16.55	-
p-Hydroxydiphenylamine, dms., f.l., f.o.b. works ... lb.	4.10	-
Hydroxycitronellal, natural, dms ... lb.	9.40	-
pure, dms ... lb.	13.60	-
extra grade, dms ... lb.	14.60	-
syn., dms ... lb.	9.50	-
Hydroxyethyl cellulose, t.l., divd ... lb.	2.07	2.12
Hydroxyethyl methylcellulose (visc. 5,000 through 45,000 cps.) 50 lb. bags, t.l., c.l., 30,000 lb. min., divd., zone 1 ... lb.	2.73	-
Hydroxypropyl methylcellulose, premium, U.S.P. (visc. 4,000 through 15,000) 50 lb. bags, t.l., c.l., 30,000 lb. min., divd., zone 1 ... lb.	2.87	-
Hydroxypropyl methylcellulose, U.S.P (visc. 50 through 100 cps) 50 lb. bags, t.l., c.l., 30,000 lb. min., divd., zone 1 ... lb.	2.99	-
Hydroxypropyl methylcellulose (visc. 4,000 through 15,000 cps) 50 lb. bags, t.l., c.l., 30,000 lb. m., divd., zone 1 ... lb.	2.17	-
Hydroxypropyl methylcellulose (visc. 50 through 100 cps) 50 lb. bags, t.l., c.l., 30,000 lb. min., divd., zone 1 ... lb.	2.64	-
8-Hydroxyquinoline (see Oxyquinoline)		
Hypophosphorous acid, purif., 50% dms., c.l., works ... lb.	3.15	-

I

Product	Price	Price
Ichthammol. NF. 200-kilo dms ... lb.	4.25	4.50
Iminodiacetic acid, 96% min., dms., c.l., t.l., works ... lb.	3.00	-
Indole, dms ... lb.	25.50	-
Inositol, 50-kilo dms., 1000 kilos or more, f.o.b. works ... kilo	17.50	22.00
Iodine, crude, dms ... kilo	13.50	16.00
Iodine USP ... lb.	14.21	14.59
Iodochlorhydroxyquin, USP, XVI 50-kilo dms., 100-499 kilos, fn. alld ... kilo.	35.00	45.00
Iodoform, NF, dms., 300-lbs., f.o.b. works ... lb.	24.00	-
a-Ionone, dms ... lb.	16.20	-
b-Ionone, dms ... lb.	13.10	-
Ipecac root, whole, bgs ... lb.	25.00	-
Irish moss, bleached, prime, whole ... lbs.	.55	.60
Iron blue, alkali-resistant, bgs., l.c.l., ton lots, dlv. E ... lb.	2.70	-
Iron blue, reg., bgs., l.c.l., ton lots, same basis ... lb.	2.00	2.15
Iron, purif., powd., pails, 10-100-lb. lots ... lb.	1.00	-
Iron oxide, black, syn., bgs., c.l., frt. equald ... lb.	.68½	.75½
Iron oxide, brown, syn., bgs., c.l., frt. equald ... lb.	.69	.76½
Iron oxide, metallic brown, l.c.l., bgs., frt. equald ... lb.	.13	.15
Iron oxide, nat., red., dom., pure, bgs., c.l., works ... lb.	.275	.40
Iron oxide, yellow ... lb.	.19	-
syn., bgs., c.l., frt. equald ... lb.	.63	.71
Iron oxide, buff, nat., dom, bgs., c.l., t.l., works, light ... lb.	.75	.80
dark ... lb.	.60	-
other shades, bgs., c.l., frt. equald ... lb.	.50	.55
Isatoic anhydride, bgs., f.o.b. works lb.	1.40	-
Isoamyl alcohol, 95% tanks, frt. alld ... lb.	1.44	1.46
Isoborneol, 100 lb. dms ... lb.	7.25	-
Isobornyl acetate, dms ... lb.	.80	1.15
Isobutyl acetate, solvent grade, tanks, frt. alld ... lb.	.45	.49
Isobutyl acrylate, tanks, frt. alld. E. . lb.	.71	-
Isobutyl alcohol, tanks, divd ... lb.	.29	-
Isobutylene, 99%, tanks, f.o.b. works ... lb.	.32	-
Isobutyl isobutyrate, tanks, f.o.b. works ... lb.	.42½	-
Isobutyl methacrylate, tanks, divd. . lb.	.87	-
Isobutyl phenylacetate, dms ... lb.	3.10	3.50
Isobutyl salicylate, dms ... lb.	3.45	-
Isobutyraldehyde, tech., dms., c.l., divd ... lb.	.43	-
tanks, divd ... lb.	.35	-
Isobutyric acid, dms., c.l., t.l., divd. . lb.	No Prices	
tanks, same basis ... lb.	.75	
Isobutyronitrile, dms., c.l., f.o.b. works frt. collect ... lb.	.84	-
tanks, same basis ... lb.	.75	-
Isoeugenol, dms ... lb.	5.20	5.90
Isoniazid, powd ... kilo	12.00	-
Isonicotinic acid, hydrazine (see Isoniazid).		
Isononyl alcohol, dms., t.l. ... lb.	.48	-
Iso-octyl alcohol, tanks, divd ... lb.	.44	-
Isophorone, tanks divd ... lb.	.91	-
Isophthalic acid, 99%, bulk, f.o.b., Joliet, Ill., min. frt. alld ... lb.	.46	-
Isophthalonitrile, bgs., t.l., works ... lb.	2.65	-
Isopropyl acetate, tanks, divd ... lb.	.47	-
Isopropyl alcohol, anhyd., 99%, tanks, divd ... gal.	1.38	-
refd., 95%, tanks, divd ... gal.	1.31	-
refd., 91%, tanks, divd ... gal.	1.25	-
Isopropyl ether, tanks, divd ... lb.	.44	-
crude, tanks, divd ... lb.	.37	-
Isopropylamine. (see Mono-, Di- or Tri-).		
Isopropyl myristate, dms., t.l., E ... lb.	1.19	1.60
Itaconic acid, refd. bgs t.l. ... lb.	1.45	1.48

J

Product	Price	Price
J acid, paste, dms., works, 100% basis ... kilo	4.75	-
Japan wax, cs. ... lb.	5.50	5.60
Jojoba oil, 55-gal, dms., f.o.b. Arizona producing point ... gal.	30.00	40.00
Juniperberry oil, Italian ... kilo	120.00	-

K

Product	Price	Price
Kaolin, water washed, fully calcined, bags c.l., f.o.b. Georgia . . ton	255.00	-
NF pwd., colloidal, bacteria controlled, 50 lb. bags., 5,000 lb. lots ... lb.	.24	-
Kaolin, uncalcined. No. 1 coating, bulk, c.l., f.o.b., Georgia ... ton	94.00	-
No. 2 coating ... ton	75.00	-
No. 3 coating ... ton	73.00	-
No. 4 coating ... ton	70.00	-
filler, gen'l purpose, same basis ... ton	58.00	-
delaminated water washed, uncalcined paint grade 1 micron avg., same basis ... ton	162.00	-
dry-grd. airfloated soft, same basis ... ton	90.00	-
Karaya gum, No. 1, powd., bbls ... lb.	2.25	-
No. 2, powd., bbls ... lb.	1.95	-
Kola nuts, bgs ... lb.	.52	.57

L

Product	Price	Price
Lacquer diluent petroleum, 140F.-200F. b.r., f.c., New Jersey and New York ... gal.	1.25	-
Houston, Texas ... gal.	1.29	-
Lacquer diluent, petroleum 200F.-240F. b.r., tankcars, New York and New Jersey ... gal.	1.20	1.25
Houston, Tex ... gal.	1.12	-
Lactic acid, food grade 88%, t.c., f.o.b. works ... lb.	1.06	-
50%, t.c., frt equald ... lb.	.62	-
tech., 88%, t.c., frt. equald ... lb.	1.03	-
Lactose, edible, reg. bgs., c.l., works ... lb.	.22	.28
Lactose, USP, reg. dms., c.l., t.t., frt. equald ... lb.	.55	.59
Lactose, USP, spray dried, bgs., t.l., frt. equald ... lb.	.60	-
Lake C, red toner, (red 53) bbls., frt. alld ... lb.	5.70	-
Lanolin, anhyd., cosmetic. 400-lb. dms., works ... lb.	1.18	1.25
pharmaceutical, 400-lb. dms. works ... lb.	1.15	-
tech., (under 2% f.f.a.), 400-lb. dms., works ... lb.	1.08	113
Lard (See Oils, Fats & Waxes market report.)		
Lard oil, No. 1, dms., c.l., f.o.b. ... lb.	.34	
tanks, same basis ... lb.	.28	
Lard oil, extra, winter-strained, dms., c.l. ... lb.	.41	-
tanks, same basis ... lb.	.33	-
prime, burning, dms., c.l., same basis, Chicago ... lb.	.43	-
prime, burning, tanks, same basis ... lb.	.35	-
NOTE: 300 Mi. rad. 1¼c. higher, except Texas, 2c., and West Coast, 3c. higher.		
Laurel leaves, Turkish ... lb.	3.00	3.10
Laurent's acid, drums, f.o.b ... lb.	3.96	-
Lauric acid, coml., pure bgs., c.l. ... lb.	.95	.71
Lauric aldehyde (aldehyde C-12), dms ... lb.	7.76	-
n-Lauryl methacrylate, dms., c.l., t.t., works ... lb.	1.72	-
Lavandin oil, Abrialis, 30-32%, dms. lb.	9.50	-
Lavender flowers, ord. ... lb.	.65	.75
medium, bls ... lb.	.80	.90
select. bls ... lb.	1.10	1.19
Lavender flower oil, NF, French, ... 40-42%, ester, cns ... lb.	9.00	13.00
spike, Spanish, dms ... kilo	13.00	14.00
Lead acetate, purif., flake. 400-lb dms., works ... lb.	.46	-
tech., flake, t.l., 400lb. dms., works ... lb.	.37	-
Lead blue, basic, sulfate, bbls., c.l., ship.l. pt., f.o.b. ... lb.	.97	-
Lead carbonate. (see Lead white basic carbonate).		
Lead chloride, 400-lb. dms., works. lb.	3.25	-
Lead dioxide, tech., powd., 200-lb dms., t.l., works ... lb.	.69	.70
Lead fluoborate, liq. conc., dms., t.t., works, frt. equald ... lb.	.65	-
Lead metal, divd ... lb.	.29	-
Lead monosilicate, milled, bgs., c.t., f.o.b. works ... lb.	.39½	-
coarse, bgs., c.l., same basis ... lb.	.37½	-
Lead naphthenate liq., 24% Pb. dms., frt. allo ... lb.	1.11	-
Lead nitrate tech., cryst., 400-lb. dms., t.l., works ... lb.	.32½	-
Lead peroxide (see Lead dioxide).		
Lead red, 95% Pb_3O_4, or less, bgs. c.l., works ... lb.	.38	.39½
Lead red, 97% Pb_3O_4, bgs. c.t., works ... lb.	.39½	.39
Lead, red, 98% Pb_3O_4, bgs., c.l., same basis ... lb.	.39½	-
Lead silicate (see Lead, white, basic silicate).		
Lead silicochromate, bgs., c.l., works ... lb.	.35	-
Lead sulfate (see Lead, blue, basic sulfate and Lead, white, basic sulfate)		
Lead, white, basic carbonate, bgs., c.l., frt. alld ... lb.	1.30	1.40
Lead, white, basic, silicate, bgs., c.l., same basis ... lb.	.87	-
Lead, white, basic sulfate, bgs., c.l., same basis ... lb.	.85	-
Lecithin, edible, tech., bleached, non-ref. dms., l.c.l., works ... lb.	.36	-
unbleached non-ref. dms., l.c.t., same basis ... lb.	.34	-
edible, tech, bleached, non-ref., dms., t.l., works ... lb.	.28	-
unbleached, non-ref., dms., t.l., same basis ... lb.	.26	-
Lemon oil, Argentina ... kilo	15.00	-
Brazil ... lb.	9.00	-
Calif., USP, dms ... lb.	9.50	9.50
Italian ... lb.	12.50	-
Lemongrass oil, Indian, dms ... kilo	11.25	-
Guatemalan, dms ... lb.	2.25	-
d-Leucine, dms., 1 kilo works ... kilo	90.00	90.00
Licorice root, whole, bls ... lb.	.40	.50
gran., bls ... lb.	.70	.90
powd., bls ... lb.	.95	-
Lignosulfonate (see under Ammonium or Sodium lignin sulfonate).		
Lime, chemical, pebble (quicklime), bulk, 50,000 lbs., works, f.o.b. plants ... ton	39.00	45.00
Lime, chemical, hydrated, bulk, same basis ... ton	46.00	50.00
bgs., same basis ... ton	54.00	57.00
Lime, NF, purif., 100-lb. dms ... lb.	.69	-
Lime oil, dist., Mexican, dms ... lb.	5.60	-
Haitian, dist., dms ... lb.	6.50	-
expressed, dms ... lb.	17.50	-
Lime salts (see Calcium).		
d-Limonene, dms ... kilo	.70	.85
Linalool ex bois de rose oil, dms ... lb.	6.35	-
syn., 98-100% dms., f.o.b. works. . lb.	2.93	-
Linalool oxide, syn., 55-gal. dm. ... lb.	7.75	-
Linalyl acetate ex bois de rose oil, 90-92%, dms ... lb.	16.00	21.00
syn. 98-100%, dms., f.o.b. works. lb.	3.10	-
Linalyl benzoate, syn., 55-gal. dms. lb.	9.00	-
Linalyl cinnamate, syn., 55-gal. dms ... lb.	59.85	-
Linalyl formate, syn., 55-gal. dms ... lb.	7.75	9.50
Linalyl isobutyrate, syn., 55-gal. dms ... lb.	8.50	9.55
Lindane, 20% formulation, dms., divd ... gal	13.10	-
99.9% tech., dms., t.l., divd ... lb.	6.60	-
Linalyl propionate, syn., 55-gal. dms ... lb.	7.90	-
Linden flowers, with leaves, bls ... lb.	.79	.95
without leaves, bls ... lb.	.90	1.16
Linseed meal (see Oils, Fats & Waxes market report).		
Linseed oil, (see Oils, Fats & Waxes market report)		
Linseed oil fatty acid, dist., dms ... lb.	.60	.67
tanks ... lb.	.53	.62
Litharge, coml., powd., bgs., c.t., works ... lb.	.34½	.40
Lithium bromide, anhyd., dms., ton lots, divd ... lb.	6.27	-
soln., same basis ... lb.	4.00	-
Lithium carbonate, powd., bgs., c.l., t.l., divd ... lb.	1.50	-
Lithium chloride, anhyd., c.l., t.t., divd ... lb.	3.32	-
soln., dms., c.l., t.l., divd ... lb.	2.94	-
Lithium fluoride, dms., c.l., t.l., divd. lb.	4.90	-
Lithium hydride, c.t, t.l., divd. 10,000 or more ... lb.	23.50	-
Lithium hydroxide, monohydrate, dms., c.f., t.l., divd ... lb.	1.93	-
Lithium hypochlorite, c.l., f.t., works lb.	1.07	-
Lithium metal, 1,000-lb. lots or more, divd ... lb.	22.70	-
Lithium nitrate, tech., dms., 100-lb. lots ... lb.	3.25	-
Lithium stearate, bgs., c.l., frt. alld. . lb.	1.01	-
Lithium sulfate, anhydrous, t.l. divd. lb.	3.09	-
Lithol red toner, barium, dms., frt. alld ... lb.	3.27	-
calcium, dms., same basis ... lb.	3.50	-
Lithol rubine toner (red 57), resinated, dms., frt. alld ... lb.	5.60	-
Litsea cubeba oil, dms ... lb.	2.50	-
Locust bean gum, powd., bgs ... lb.	6.00	6.75
2,4-Lutidine, dms., t.l., frt. equald. kilo	5.75	-
Lycopodium, 50-lb. dms ... lb.	6.00	10.00
1-Lysine monohydrochloride, feed grade, 10,000 lbs. divd ... lb.	1.35	1.40

M

Product	Price	Price
Mace, East Indian, siftings ... lb.	4.95	5.00
Siauw #2 ... lb.	5.50	5.75
Magnesia, tech., light, neoprene grade, bgs., c.l., t.l., works lb.	.75	.81
Magnesia, syn., tech., chemical-grade, bulk, c.l., t.l. works ... ton	330.00	-
bags, c.l., t.l., same basis ... ton	365.00	-
deadburned, bulk, same basis ... ton	392.00	-
bgs., same basis ... ton	409.00	-
Magnesia, nat., tech., heavy, 65%, 150 mesh, bulk, c.l., t.l., f.o.b. Nev ... ton	232.00	-
90%, 325 mesh, same basis. . ton	265.00	-
Magnesium bromide, 90-lb. dms., hexahydrate ... lb.	2.50	-
Magnesium carbonate, light, tech., bgs., c.t., t.t., works, frt. equald ... lb.	.73	.78
USP, lite bgs., c.l., same basis . . lb.	.74	.80
USP, heavy, bgs., c.l., same basis. . lb.	.83	-
Magnesium chloride, anhyd., 92%, flake or pebble dms., c.l., works ... lb.	.12¾	.15
Magnesium chloride, hydrous, 99%, flake, bgs., c.l., works ... lb.	.14½	-
Magnesium gluconate, 100-lb. dms. f.o.b. works, E. ... lb.	4.25	-
Magnesium hydroxide, NF, powd., dms., c.l., f.l., works frt. equald ... lb.	.78	-
Magnesium lauryl sulfate, tanks, f.o.b. works ... lb.	.22	.26½
Magnesium metal, 99.9%, ingots, 10,000-lb. lots or more, f.o.b. Freeport, Tex ... lb.	1.53	-
die casting alloys ... lb.	1.29	1.33
Magnesium nitrate, tech., flake. 250-lb. dms., t.l., works ... lb.	.32	-
Magnesium oxide, USP, light, bgs., c.l., works, frt. equald ... lb.	1.65	-
heavy, dms., c.l., same basis ... lb.	1.54	-
Magnesium oxide, tech. (see Magnesia).		
Magnesium phosphate, tribasic, tech. 50-lb. bgs., f.o.b ... lb.	1.00	-
Magnesium silicate (see Talc).		
Magnesium silicofluoride, bgs., c.l., t.l. works ... lb.	.1645	.1807
Magnesium stearate, bulk, f.l. ... lb.	.95	1.06
Magnesium sulfate 10% Mg. (epsom salts), tech. bgs., t.l., works ... lb.	.14	-
bulk, same basis ... lb.	.13	-
USP, cryst., bgs., same basis . lb.	.13½	-
USP, cryst., bulk, same basis . lb.	.14½	-
Magnesium sulfate, 17% Mg. (synthetic monohydrate), tech. bgs. t.l., works ... lbs.	.90	-
CP, same basis ... lbs.	1.25	-
Magnesium sulfate, anhydrous, CP bgs., t.f., works ... lbs.	1.75	-
Magnesium sulfate trihydrate, tech., bgs., t.l., works ... lb.	.45	-
Magnesium trisilicate, USP, powd., fib. dms. 5,000-lb. lots ... lb.	.38	-
USP, micronized powd., dms., 375-lb. lots ... lb.	.63	-
Malathion, tech., dms., t.l., works. . lb.	1.62	-
Maleic acid, cryst., powd., drums, 100 kilos, f.o.b ... kilos	3.20	-
drums, tons, f.o.b ... kilos	2.80	-
Maleic anhydride, bgs., t.l., works, frt. equald ... lb.	.65	.69
tanks, works, frt. equald ... lb.	.63	-
Malic acid, purif, and food grades. 50-lb. bgs., t.t, c.l., divd ... lb.	.81	.84
Mandarin oil, Brazilian, dms ... lb.	17.75	-
Mandelic acid, dms., 1,000 kilo lots ... kilo	8.00	10.00
Manganese acetate, dihydrate, dms., divd ... lb.	.43½	.48
tetrahydrate, dms., t.l., divd ... lb.	.48	-
Manganese borate printing ink drier. lb.	1.68	1.80
Manganese borate, tech., dms ... lb.	.80	.99
Manganese carbonate, chemical grade, 46% Mn. bgs., 20,000-lb. lots or more, works ... lb.	1.05	-
Manganese chloride, anhyd., dms., 20,000-lb. lots or more ... lb.	.61	-
Manganese dioxide, nat., African, grd., 74%-78% MnO_2, 100-lb. bgs., t.l., works ... ton	200.00	380.00
84% MnO_2, same basis ... ton	250.00	-
Manganese dioxide, syn., cryst., battery grade, 90%-92% MnO_2, 100-lb. bgs., c.l., works ... lb.	.70	[illegible]
chemical, ferrite grade, same basis ... lb.	.49	.61
Manganese gluconate, FCC grade, 100-lb dms., f.o.b. works ... lb.	3.50	[illegible]
Manganese hydrate dms., divd ... lb.	.35	
Manganese hypophosphite, NF, dms. ... lb.	8.75	
Manganese metal, electrolytic, No. 1 chip, bulk, c.l., works ... lb.	[illegible]	
dms., c.l., works ... lb.	[illegible]	
Manganese naphthenate, liq., 6% Mn. dms., divd ... lb.	.67	
Manganese resinate, fused, 3½% Mn. dms., frt. alld ... lb.	.34¼	-
precip. 6½-7% Mn. dms ... lb.	.42	-
Manganese sulfate, fertilizer grade, run-of-pile, 75%-78% $MnSO_4$, 25 kilo bgs., 50-ton cars, divd E. of Miss ... ton	280.00	-
bulk, hopper cars, same basis . . ton	245.00	-
Manganese sulfate, 28% Mn. gran., bgs., c.l., t.l., works ... ton	330.00	-
Manganese tallate, liq., 6% Mn, dms., frt. alld ... lb.	.60	-
Mannitol, coml., powd., dms., t.l., works ... lb.	3.02	-
Marjoram, French ... lb.	.86	.89
Egyptian ... lb.	.61	.82
MBT (see 2-Mercaptobenzothiazole).		
MBTS (see Mercaptobenzothiazyl disulfide).		
MDI (see Diphenylmethane 4,4,-di-isocyanate)		
Melamine, bgs., c.l., t.l., 40,000-lb. min., f.o.b. works ... lb.	.51½	.59½
bulk, c.l., t.l., same basis ... lb.	.50	.58
Melamine-formaldehyde resin, c.p., t.l. frt. alld ... lb.	.55	.60
molding compounds, same basis ... lb.	.49½	-
Menhaden oil, crude, tanks, works Atlantic Coast ... lb.	.12	-
Gulf ports, same basis ... lb.	.13	-
Menthol, nat., USP, Brazilian large and regular crystals, spot, cs., bulk ... lb.	8.60	8.75
syn., USP, racemic, 100-450 lbs. lb.	9.00	-
2-Mercaptobenzothiazole, bgs., t.l., works, frt. alld ... lb.	1.25	1.55
Mercaptobenzothiazyl disulfide t.l., dms., works, frt. alld ... lb.	1.33	1.66
Mercuric chloride NF, gran., powd., 100-lb. dms., f.o.b. works. . lb.	8.50	-
Mercuric oxide, red, purif., 100-lb. dms., f.o.b. works ... lb.	7.00	7.25
tech., 100-lb. dms., same basis ... lb.	5.50	7.00
yellow, NF, 100-lb. dms., same basis ... lb.	7.00	7.25
tech., 100-lb. dms., same basis ... lb.	5.50	7.50
Mercurous chloride (see Calomel).		
Mercury, ammoniated (see White precipitate USP XV).		
Mesityl oxide, tanks, divd ... lb.	.45	-
Methacrylic acid, glacial, 99%, dms., t.l., frt. equald ... lb.	.97	-
tanks, works, frt. equald ... lb.	.79	-
d-Methamphetamine hydrochloride, dms ... lb.	12.00	16.00
dl-Methamphetamine hydrochloride, dms ... lb.	4.50	7.00
Methanol, syn., barges, f.o.b. producing point, Gulf Coast ... gal.	.29	-
Methenamine (see Hexamethylenetetramine).		
Methionine hydroxyanalogue, dry, 88% activity t.l., frt. alld ... lb.	.86	-
liquid, 88% activity, t.l. frt. alld ... lb.	.88	-
dl-Methionine (see Racemethionine)		
Methoxychlor, 50% wettable powder, dealers, dms ... lb.	2.05	-
Methyl abietate, non-ref. dms., c.l., divd E ... lb.	9.40	-
Methyl abietate, hydrogenated, non-ref. dms., l.c.l., same basis ... lb.	10.00	-
Methyl acetoacetate, East, divd. bulk ... lb.	.65	-
Methyl acrylate, tanks, divd ... lb.	95.00	-
Methyl alcohol (see Methanol)		
Methyl amyl alcohol, tanks, divd ... lb.	.55	-
Methyl n-amyl ketone, tks., divd ... lb.	.64½	-
Methyl anthranilate, tech., dms., f.o.b. ... lb.	1.41	2.65
Methyl benzoate, dms., t.l. ... lb.	.25	-
99.9%, perf. grade, dms., f.l. ... lb.	1.65	-
Methyl bromide, dist., tanks, 140,000 lbs. min., frt. alld ... lb.	.58¾	-
Methylcellulose, premium, USP (visc. 400 through 4,000 cps) 50 lb. bags, tl., cl., 30,000 lb., min., divd., zone 1 ... lb.	2.73	-
Methylcellulose, premium USP (visc. 15 cps) 50 lb. bags, tl., cl., 30,000 lbs., divd., zone 1. . lb.	2.85	-
Methylcellulose, (visc. 400 through 4,000 cps) 50 lb. bgs., tl., cl., 30,000 lbs., divd., zone 1. . lb.	2.24	-
Methylcellulose (visc. 15 to 25 cps) 50 lb. bags, tl., cl., 30,000 lb. min., divd., zone 1 ... lb.	2.52	-
Methyl chloride, indust. bulk, tanks, f.o.b. works ... lb.	.22	.26
Methyl chloroform (see 1,1,1-Trichloroethane).		
Methyl cinnamate, dms ... lb.	4.65	-
Methyl p-cresol, dms ... lb.	6.00	-
Methyl ethyl ketone, tanks, divd, E. . lb.	.235	-
Methyl eugenol, 25-lb. cns ... lb.	3.55	3.60
Methyl formate, pure, non-ret. dms., works ... lb.	.41	-
tanks, same basis ... lb.	.29	-
tech., tanks, works ... lb.	.31	-
Methyl heptenol, syn., 55-gal. dms. lb.	14.50	-
Methyl heptenone, pure, dms ... lb.	7.30	-
Methyl heptin carbonate, dms ... lb.	45.00	-
Methyl p-hydroxybenzoate (see Methylparaben)		
Methyl ionone, ald., dms ... lb.	7.30	9.40
Methyl isoamyl ketone, tanks, divd. E ... lb.	.51	-
Methyl isobutyl carbinol (see Methyl amyl alcohol).		
Methyl isobutyl ketone, tanks, divd. lb.	.35	-
divd. zone 2 (Calif.) ... lb.	.38	-
divd. zone 3 (W. of Rockies, excluding Calif.) ... lb.	.41	-
Methyl isoeugenol, 25-lb. cns ... lb.	6.50	10.40
Methyl methacrylate, tanks, divd ... lb.	.62	-
Methyl naphthyl ketone, cryst., dms ... lb.	14.00	-
Methylparaben, USP, 500 kilograms, f.o.b. ... kilo	10.14	-
tech., 500 kilograms, f.o.b. ... kilo	9.70	-
Methyl parathion, tech., 80%, dms., frt. alld. E ... lb.	1.85	-
Methyl phenylacetate, dms ... lb.	3.60	5.40
N-Methyl-2-pyrrolidone, tanks, f.o.b. plant ... lb.	1.32	-
dms., c.l., t.l., same basis ... lb.	1.40	-
Methyl rosaniline chloride, USP, 1-lb. cans ... lb.	5.50	-
Methyl salicylate, NF, 1000-lb. dms., t.l., frt. alld ... lb.	1.79	1.94
Methyl violet (see Methyl rosaniline chloride).		
Methyl violet toner, molybdated, PMA, bbls., divd, E. of Rockies. . lb.	3.25	-
Methyl violet toner, tungstated, PTA, bbls., same basis ... lb.	4.70	5.20
4,4,-Methylene dianiline (p,p-diaminodiphenyl methane) crude, dms., t.l., f.o.b. ... lb.	1.75	-
purif., flake, same basis ... lb.	2.25	-
Methylene di-p-phenylene di-isocyanate (see diphenylmethane 4,4,-di-isocyanate).		
Methylene chloride. tanks, 4,000 gal.-min., consumers, divd ... lb.	.35	-
Methylpentanediol (see Hexylene glycol).		
Methylphenylpyrazolone (see 1-Phenyl-3-methyl-pyrazolone-5).		
a-Methylstyrene, f.o.b. shipping pt. . lb.	.44	-
p-Methylnaphthalene, bulk, works. gal.	1.38	-
Methylthionine chloride (see Methylene blue).		
Mica, dry-grd., joint cement, plastic, 50 lb., bgs., c.l., works ... lb.	.07½	-
dry-grd., roofing, 20 to 60 mesh. works ... lb.	.07	-
paint or lacq., wet-grd., 325-mesh, bgs., c.l., f.o.b. works ... lb.	.16¾	-
rubber, bgs., c.l., f.o.b. works ... lb.	.16¾	-
wallpaper, bgs., c.l., f.o.b. works. lb.	.22	-
Microcrystalline wax, petroleum, coating grades, FDA, tanks, works ... lb.	.39½	.49½
laminating grades, FDA, tanks, works ... lb.	.38½	.48
Mineral oil, white, 50-65 vis., USP light tanks, refy ... gal.	2.38	-
65-75 vis., tanks, refy ... gal.	2.42	-
80-90 vis., tanks, refy ... gal.	2.45	-
145-155 vis., tanks, refy ... gal.	2.53	-
USP 180-190 vis., tanks, refy ... gal.	2.54	-
200-210 vis., tanks, refy ... gal.	2.56	-
340-350 vis., tanks, refy ... gal.	2.55	-
Mineral spirits, petroleum, odorless, tanks, New Jersey ... gal.	1.83	1.99
Houston, Tex ... gal.	1.78	1.79
Mineral spirits, petroleum, regular, tanks, New Jersey ... gal.	1.41	1.49
Houston, Tex ... gal.	1.41	1.43
Molybdate orange, bbls ... lb.	1.52	1.95
Molybdenum metal, coml., powd., 99.8%, dms., works ... lb.	13.50	-
Molybdenum trioxide, CP, dms., works, 24,000 lbs. or more. lb.	5.25	-
tech., chemical, dms., 24,000 lbs. or more, basis ... lb.	2.95	2.95
tech. metallurgical, dms. same basis. lb.	2.95	2.85
Molybdic acid (See Ammonium Dimolybdate)		
Monoammonium phosphate, fert. grade, min. 13% N. 52% P. bulk, c.l., f.o.b. Fla. works ... ton	155.00	-
Monoammonium phosphate, tech., bgs., c.l., t.t., works, frt. equald ... 100 lbs.	54.00	-
food grade, bgs., c.l., t.t., same basis ... 100 lbs.	59.25	-
Mono-tert-butyl-m-cresol, bulk, t.t. lb.	1.99	-
Monobutylamine, bulk, divd ... lb.	.98	1.00
Monochloroacetic acid, purif. (see Chloroacetic acid, mono).		
Monochlorobenzene, tanks, f.o.b. . lb.	.42½	-
Monoethanolamine, tanks, frt. alld. E ... lb.	.43	.49
Monoethylamine, 70% aqueous tanks, frt. prepaid, 100% basis ... lb.	.94	-
anhyd., tanks, same basis ... lb.	.92	-
Monoisopropanolamine, dms., c.t., frt. alld. E ... lb.	.79	-
tanks, same basis ... lb.	.66	-
Monoisopropylamine, anhyd., dms., c.l., frt. prepaid ... lb.	.79	-
tanks, same basis ... lb.	.79	-
Monomethylamine, anhyd., tanks, contained basis frt. equald ... lb.	.54½	-
25% soln., tanks, frt. alld, 100% basis ... lb.	.57	-
40-60% soln., tanks, frt. equald. 100% basis ... lb.	.63½	-
Monopotassium glutamate, dms., 990 lb. or more, frt. alld ... lb.	2.50	-
Monosodium glutamate, 50-lb. bgs. c.l., t.l., divd ... lb.	.79	.80
100-lb. drums, c.l., f.l., divd ... lb.	.65	-
Monosodium phosphate (see Sodium phosphate, monobasic).		
Montan wax, crude, imp., German . lb.	.55	.57
dom., Calif., bgs., c.l., t.l., f.o.b. shipt. pt. ... lb.	.61	-
refd., dom. Calif., same basis ... lb.		
Morphine alkaloid, NF, 25 k lots . . kilo	1019.00	-
Morphine sulfate, USP, 25 k lots . . kilo	850.00	-
Morpholine, dms., c.l., frt. alld. E. . lb.	1.02	-
tanks, frt. alld, E ... lb.	.94	-
Muriatic acid (see Hydrochloric acid).		
Musk, syn., ambrette, 25-lb. cns. . lb.	9.00	7.00
Musk, syn., ketone, dms ... lb.	10.75	-
Musk, syn., xylol, dms ... lb.	3.60	-
Mustard oil, syn. (see Allylisothiocyanate).		
Mustard seed, Brown No. 1 ... lb.	.20	-
Canadian No. 1 Yellow ... lb.	.21	-
Oriental No. 1 bgs ... lb.	.20	-
Myrcia oil (see Bay oil).		
Myristic acid, coml., pure, t.l., bgs. . lb.	1.30	-
tanks ... lb.	1.12	-
Myristica oil (see Nutmeg oil).		
Myrrh gum, bgs ... lb.	2.25	-

N

Product	Price	Price
Naphtha, high solvency (see Solvent naphtha, petroleum).		
Naphtha, petroleum, cleaners (see Cleaner's naphtha).		
Naphtha, VM&P, petroleum, tanks, New Jersey and New York ... gal.	1.29	1.34
Houston, Tex ... gal.	1.20	-
Naphthalene, crude, dom., 78°, tanks, works ... lb.	.22	-
Naphthalene, phthalic anhydride grade, tanks, works ... lb.	.23½	-
Naphthalene, petroleum, 80°C., f.o.b. ... lb.	.30	.32½
Naphthalene, refd., balls, flakes, whole salers, jobbers, dms., works ... lb.	.66	.77
Naphthenic acid, crude, bulk, works lb.	.30	.43
refined, 220 acid, same basis ... lb.	.80	.90
a-Naphthol, ground, dms., f.l. divd. . lb.	1.61	-
b-Naphthol, tech. flake, 80-lb. bgs., c.l., works ... lb.	1.10	-
Naphthol arylide red toner deep shades, bbls ... lb.	13.40	15.45
light shades, bbls ... lb.	9.20	13.00
2-Naphthol-3,6-disulfonic acid, disodium salt (see R salt).		
1-Naphthol-5-sulfonic acid (see L-acid).		
1-Naphthol-5-sulfonic 8-amino acid (see S acid).		
Naphthylamine sulfonic mixed acid (see Cleve's acid).		
a-Naphthylamine, tanks, f.o.b. works ... lb.	2.10	-
1-Naphthylamine-5-sulfonic acid (see Laurent's acid).		
2-Naphthylamine-4,8 disulfonic acid (see Cassella acid).		
2-Naphthylamine-1-sulfonic acid (see Tobias acid).		
Neatsfoot oil, 20°F, t.l., f.o.b. works dms ... lb.	.52	-
tanks, f.o.b. works ... lb.	.47	-
30°F, t.l., f.o.b. works ... lb.	.52	-
tanks, f.o.b. works ... lb.	.44	-
40°F, dms., f.l., f.o.b. works ... lb.	.49	.49
tanks, f.o.b. works ... lb.	.39	-
Delivered prices apply on shipments within 300-mile radius of Philadelphia, Pa.; other areas, 1¼c. higher; Texas, 2c. higher and West Coast 3c. higher.		
Neomycin sulfate, USP, non-sterile, dms., 50-kilo. lots, activity basis, divd ... kilo.	75.00	-
Neopentyl glycol, slurry, 90%., c.l., t.l., divd ... lb.	.522	-
powder, flake, bgs. t.l., divd. . lb.	.598	
Nerol, tech., dms ... lb.	5.30	5.75
perf. grade, dms ... lb.	4.80	5.00
Neroli oil, Tunisian, bots ... kilo	2,700.00	-
Nerolidol syn. 55-gal. dms ... lb.	7.05	-
Nerolin, Bromelia ... kilo	7.22	-
Niacinamide, USP, t.l. dms ... kilo.	9.00	-
Niacin NF, dms., 5,000 kilos or more, divd ... kilo	7.60	-
feed-grade, 98-99.5%, bgs., same basis ... kilo.	5.10	5.60
Nickel acetate, dms., 5,000-lbs. to t.l., divd. E ... lb.	1.92	-
Nickel carbonate, dms., bgs., 5,000-lbs. to t.l., divd. E ... lb.	3.45	-
Nickel chloride, bgs., 10,000-lbs. to t.l., divd. E ... lb.	1.18	-
Nickel fluoborate, liq. conc., dms., t.l., divd. E ... lb.	1.25	-
Nickel metal, electro cathodes, cs., works ... lb.	3.46	-
Nickel nitrate, dms., bgs., t.l., divd E ... lb.	1.18	-
Nickel oxide, 75%-78% Ni, dms., 500-lb. lots, f.o.b. works ... lb.	2.60	-
Nickel sulfate, bgs., t.l., divd. E ... lb.	.80	.90
Nicotinic acid (see Niacin).		
Nicotinamide (see Niacinamide).		
Nitric acid, 36° Be., 38°Be, 40°Be, 42°Be. tanks, c.t., works NF, 100% basis ... ton	195.00	-
94½% to 98% HNO_3, tanks, works, 100% basis ... ton	290.00	-
o-Nitroaniline, flake, dms., t.l. works ... lb.	1.51	-
molten, retd., tanks, works ... lb.	1.44	-
molten, tech., works ... lb.	1.37	-
o-Nitroaniline, orange toner, bgs., frt. alld ... lb.	1.90	-
p-Nitroaniline, dms., c.l., t.l., 30,000 lb. min., works ... lb.	1.63	-
o-Nitroanisole, 100-kilo lots ... kilo	9.75	-
Nitrobenzene, tanks, f.o.b. ... lb.	.33	.34
o-Nitrochlorobenzene, dms., t.l., c.l., f.o.b. ... lb.	.82	-
tanks, same basis ... lb.	.74	-
2-Nitro-p-cresol, tech., dms., t.l., frt. alld ... lb.	1.75	-
Nitroethane, tanks, divd. E ... lb.	2.50	-
Nitrogen solutions, direct application, over 32% N, and mgt. type, works ... unit-ton.	1.20	-
direct application, 19-32% N ... unit-ton.	1.26	1.46
Nitrogenous sewage sludge, processed, bulk, f.o.b. Chicago ... unit ton.	4.10	-
NOTE: Price is per unit NH_3 plus $1, per unit e.p.a. bulk, f.o.b. producer's works, Chicago.		
Nitrogenous tankage, processed, bulk, per unit-ton NH_3, f.o.b. Carrollville, Wisc ... unit ton	7.00	-
f.o.b. Forbes, Mo ... unit ton	6.75	-
expanded, bulk, c.l., per unit-ton N, f.o.b. Forrestdale, R.I. unit ton	9.35	-
Nitromethane, dms., t.l., divd. E ... lb.	2.37	-
o-Nitrophenol, dms., f.o.b. works ... lb.	1.00	-
p-Nitrophenol, dms., c.l., f.o.b. works ... lb.	1.05	1.45
2-Nitropropane, tanks, frt. alld. E ... lb.	.55	-
m-Nitrotoluene, tech., dms., frt. alld. lb.	1.15	-
o-Nitrotoluene, dms., c.l., f.o.b. ... lb.	.65	-
tanks, same basis ... lb.	.48	.57
p-Nitrotoluene, tech. dms., c.l., works ... lb.	.83	.85
tanks, works ... lb.	.70	-
Nonylphenol, tanks, f.o.b. E. of Rockies, min. frt. alld ... lb.	.49	.53½
Norephedrine hydrochloride (see Phenylpropanolamine hydrochloride)		
Nutmeg oil, dist., East Indian, NF, dms ... kilo	32.00	34.00
Nutmegs, East Indian, whole ... lb.	3.15	-

O

Product	Price	Price
Ochre (see Iron oxide, yellow, nat.)		
Ocotea cymbarum oil dms ... kilo	5.15	5.20
Ocotea, Chinese 90% ... kilo	5.25	-
1-Octadecanol, syn., tanks, f.o.b. . lb.	.43½	-
1-Octanol, syn., tanks, f.o.b. ... lb.	.70	-
n-Octane, 97% min., tanks, f.o.b. Houston, Tex ... gal.	6.25	-
Octyl alcohol, perfumer's grade, bots., cns ... lb.	1.40	1.75
n-Octyl, n-decyl phthalate, tanks, divd ... lb.	.33½	.37
tert-Octylamine, dms., c.l., t.l., works.	2.50	-
Octylphenol, molten, t.c., works ... lb.	.75	.76½
Oiticica oil, liq. dms ... lb.	.40	-
tanks ...	.32	-
Oleic acid, dbl.-dist., (white), dms ... lb.	.46	.59
tanks ...	.38	.44
Oleic acid, s.d. (red) dms ... lb.	.43	.49
tanks ... lb.	.36	.41
Oleum (see Sulfuric acid, fuming).		
Olibanum gum, tears, bgs ... lb.	2.10	-
Olive oil, edible, Spanish, dms ... gal.	6.00	-
Italian B-type ... gal.	5.40	5.50
Olivine, crude, works ... ton	12.00	-
20 mesh. works ... ton	15.00	-
100 mesh. works ... ton	20.00	-
Opium, USP, gran. powd. 25-kilo lots ... kilo	125.00	-
Orange oil, expressed, USP, Calif., dms., f.o.b. plant ... lb.	1.20	-
expressed Valencia, dms ... lb.	.75	-
Calif., dist., cns. f.o.b. plant ... lb.	1.25	-
Florida, dms ... lb.	.90	.95
Brazilian ... kilo	.90	-
West Indian, bitter, NF X, cns., dms ... lb.	13.00	-
Orange peel, bitter, Haitian bls ... lb.	.38	-
Oregano, Greece, 30M ... lb.	2.90	-
Turkey ... lb.	2.60	-
Mexico ... lb.	1.05	-
Origanum oil, Spanish, cns ... kilo	35.00	-
Orris root, Florentine, bls ... lb.	4.00	-
powd., bbls., bxs ... lb.	4.90	5.00
Verona bls ... lb.	3.00	-
powd., bbls., bxs ... lb.	4.60	5.00
Ouricury wax, refd., pure, bgs ... lb.	3.25	3.35
Oxalic acid, bgs., c.l., works ... lb.	.44	-
b-Oxynaphthoic acid dms. works, tech ... lb.	2.55	-
Oxyquinoline base, pure, 1,000 lbs., frt. alld ... lb.	9.00	-
Oxyquinoline sulfate, 100 lbs. frt. alld ... lb.	4.00	-

P

Product	Price	Price
Palladium metal, works ... Troy-oz.	127.00	-
Palm oil, (see Oils, Fats & Waxes Market Report)		
Palm oil acid, dbl-dist dms ... lb	.31½	-
tanks ... lb	.30	-
s.d., dms ... lb.	.42	.45
tanks ... lb.	.35	-
Palm kernel oil, bulk, c.i.f., U.S. ports ... lb.	.19½	.19¼
Palmarosa oil, Indian dms ... kilo	42.00	-
Palmitic acid, 90%, tech., bags ... lb.	.63	-
tanks ... lb.	.51	-
Papaverine hydrochloride, NF powd., imp. bulk ... kilo	58.00	-
Paprika, Hungarian, 100 AU bgs. . . lb.	.80	-
Spanish, 110 AU bgs ... lb.	.90	-
Paraffin, fully-refd., 127-130 F., ASTM, tanks, refy ...	.29	.35
130-135 F., ASTM, tanks, refy.	.33½	.39
140-145 F., ASTM, tanks, refy.	.35	.41½
150-155 F., ASTM, tanks, refy.	.41½	.49
slack wax, 5% oil, tanks refy ...	.19	-
12% oil, tanks refy ...	.21	-
20% oil, tanks refy ...	.16	-
AMP temperatures are an arbitrary 3F higher than ASTP.		
Paraformaldehyde, 91%, flake, bgs. c.l., t.l., divd ... lb.	.29½	-
95%, powd., bgs., c.t., t.l. divd. lb.	.39½	-
Paraldehyde, tech., 98%, 55-gal. dms., t.l., divd. E ... lb.	.76½	-
tanks, divd. E ... lb.	.58½	-
Parathion, ethyl, dms., frt. alld ... lb.	1.75	-
Parathion methyl (see Methyl parathion).		
Para toner red, bbls ... lb.	3.75	-
chlorinated, (red 4) kgs ... lb.	3.75	-
Patchouli oil, Indonesian., dms ... kilo	19.50	20.00
Patchouli oil, Chinese ... kilo	19.00	21.00
Peach kernel oil, USP (see Apricot kernel oil).		
Peanut meal (see Oils, Fats & Waxes market report).		
Peanut oil (see Oils, Fats & Waxes market report).		
Pectin dom., NF, citrus, powd., 100-kilo lots divd ... lb.	3.30	3.70
Pelargonic acid, nat., tanks, min. frt. alld ... lb.	.70	-
syn., tanks, f.o.b. frt. alld ... lb.	.70	-
Penicillin, potassium, non-sterile, 200-billion-unit lots ... billion units	25.00	30.00
Penicillin, procaine, sterile 50-billion-unit lots, bulk ... billion units.	36.00	-
Pennyroyal oil, dms ... lb.	10.25	-
Pentachlorophenol, 50-lb. bgs., t.l., f.o.b. Wichita, Kan ... lb.	.55	-
Pentaerythritol, tech., bgs., c.l., f.o.b., frt. alld ... lb.	.71	.72
Pentaerythritol, di- and tri-isomers (see Dipentaerythritol and Tripentaerythritol).		
Pentaerythritol triacrylate, t.l. dms., f.o.b. works ... lb.	1.50	-
Pentobarbital, dms., 100 lbs. or more, frt. alld ... lb.	7.00	-
Pentobarbital-sodium, dms., 100 lbs. or more, divd ... lb.	14.00	-
Pentylene tetrazol, NF, dms., 200-kilo lots ... kilo	32.00	-
Pepper, black, Brazilian, bgs ... lb.	2.28	-
Lampong, bgs ... lb.	2.30	-
Malabar, bgs ... lb.	2.28	-
Tellicherry, bgs ... lb.	2.35	-
Pepper, red Chinese Fukien rice bgs lb.	.89	-
Hainan, bgs ... lb.	1.00	-
Liling, bgs ... lb.	.76	-
Indian, S-4, bgs ... lb.	.70	-
Pakistan, dundicute, bgs ... lb.	.43	-
Pepper, white, Muntok, bgs ... lb.	3.05	-
Peppermint leaves, imp., dms ... lb.	2.85	-
Peppermint oil, Madras ... lb.	14.00	-
Midwest ... lb.	16.00	-
Willamette ... lb.	11.00	-
Yakima ... lb.	8.00	-
syn., dms. f.o.b. works ... lb.	7.00	9.00
Brazilian ... kilo	6.50	-
Chinese ... kilo	6.90	-

CHEMICAL PRICES

WEEK ENDING NOV 14, 1986

Perchloroethylene, dry cleaning grade, distr., tanks, dlvd. ....lb.	.28½	–
indust. grade, consumers, tanks, dlvd ....lb.	.61	–
Peri acid. dms ....lb.	2.55	–
Permanent red 2B, (red 48), calcium salts, dms., frt. alld. ....lb.	5.25	–
barium salts, same basis ....lb.	5.25	–
Peru balsam, f.o.b. ....lb.	3.25	–
Petitgrain oil, Paraguay ....lb.	5.00	–
Petrolatum, USP, snow white, dms., c.l., refy ....lb.	.375	–
tanks, refy ....lb.	.310	–
USP, soft white, dms., c.l., refy. ..lb.	.375	–
tanks, refy ....lb.	.310	–
USP, lily white, dms., c.l., refy ....lb.	.370	–
Petrolatum, USP, Lily white, tanks, refy ....lb.	.305	–
USP, cream, dms., c.l., refy ....lb.	.365	–
tanks, refy ....lb.	.30	–
USP, soft yellow, dms., c.l., refy. .lb.	.350	–
tanks, refy ....lb.	.285	–
USP, amber, dms., c.l., refy ....lb.	.345	–
tanks, refy ....lb.	.280	–
Petroleum pitch (see Asphalt, petroleum).		
Petroleum sulfonate, 50-62%, sulfonic cont., HMW, bulk, works ..lb.	.48¼	.46
MMW, same basis ....lb.	.49	–
LMW, same basis ....lb.	.48	.49¼
Prices for 51% sulfonic content 2c per lb. lower on corresponding molecular wts.		
Phenacetin USP, powd., 200-lb. dms., 1,000-lb. lots, dlvd. ....lb.	2.20	–
100-lb. dms., 1,000-lb. lots, dlvd. lb.	2.22	2.45
p-Phenetidine, dms., c.l., f.o.b. ....lb.	2.00	–
Phenobarbital, USP, dms., 500-kilo lots, f.o.b. works ....kilo	16.50	–
Phenobarbital-sodium, NF, 500-kilo lots, f.o.b. works ....kilo	27.00	–
Phenol, syn. tanks, frt. equald. ....lb.	.25	.29
p-Phenolsulfonic acid, 65% sol'n., dms., c.l., fob works ....lb.	.54	–
tanks, same basis ....lb.	.55	–
Phenothiazine, indust. grade, 50-lb. bags, c.l., f.o.b. works ....lb.	2.33	–
purif. grade, same basis ....lb.	2.69	–
Phenyl acetate, dms., 100-lb. lots, works ....lb.	1.04	–
Phenylacetic acid, pure cryst., 25-lb. cns. ....lb.	4.50	–
dl-Phenylalanine, dms., 25-kilo lots ....kilo.	84.00	–
1-Phenyl-3-carbethoxy pyrazolone-5, dms. 200-lb. lots, dlvd. E. .lb.	3.45	–
m-Phenylenediamine, cast, dms., c.l., t.l., f.o.b.works ....lb.	2.07	–
o-Phenylenediamine, flaked, dms., t.l., f.o.b. works ....lb.	3.25	–
p-Phenylenediamine, flaked, dms., f.o.b. works ....lb.	4.00	–
Phenylephrine hydrochloride, USP 100-kilo lots or more ....kilo.	175.00	165.00
Phenylethyl acetate, dms ....lb.	3.35	–
2-Phenylethyl alcohol, NF, dms ....lb.	2.10	2.20
b-Phenylethylamine, dms., 30,000 lbs. or more, frt. alld ....lb.	1.50	–
Phenylothylphenyl acetate, 25-lb. cns ....lb.	5.50	6.60
Phenylglyconic acid (see Mandelic acid).		
Phenylhydrazine, 99% min., dms ....lb.	6.50	–
1-Phenyl-3-methyl-5-pyrazolone, dms., 250-lb. lots dlvd. E ..lb.	1.80	–
o-Phenylphenol, dms., t.l., works ..lb.	1.35	2.00
p-Phenylphenol, bgs., t.l., 40,000 lbs. or more, works ....lb.	1.85	–
Phenylpropanolamine hydrochloride, 100-kilo dm ....kilo	24.00	28.00
Phenylsalicylate, purif. cryst., dms., E ....lb.	2.75	–
tech., cryst., E ....lb.	2.25	–
flake, E ....lb.	2.35	–
Phloxine toner (red 90), dms., frt. alld ....lb.	1.95	2.05
Phosgene, 1-ton ret. cyls., 5 to 9-cyl. quantities, works ....lb.	.55	.57
Phosphate rock, Fla., land pebble, run of mine washed, 66-68% b.p.l. bulk c.l. mines ....ton	23.15	–
vessel, Tampa, same basis ....ton	26.00	–
Phosphoric acid, com'l. and tech. grades, 75% tanks, works ....100 lbs.	28.00	–
80% tanks, works ....100 lbs.	31.00	–
85%, N.F. tanks, f.o.b. freight equald ....100 lbs.	33.50	–
Food grade prices $2.00 above tech. grade.		
Phosphoric acid, agricultural grade, 52-54% a.p.a., tanks, works ....unit-ton	3.10	–
super, min. 70% a.p.a., same basis ....unit-ton.	3.45	–
Phosphorus, white (yellow) solid dms., c.l., works, frt. equald ....lb.	1.00	–
tanks, works, f.o.b. works. .lb.	.91	–
Phosphorus oxychloride, tanks, frt. equald ....lb.	.40	–
Phosphorus pentasulfide, powd., dms., c.l., works ....100 lbs.	50.00	–
tote bins, sellers ....100 lbs.	45.00	–
Phosphorus pentoxide, dms., t.l., works ....lb.	.82	–
Phosphorus sesquisulfide, dms., cvs., c.l., works ....lb.	.38	–
Phosphorus trichloride, dms., c.l., works ....lb.	.40	–
tanks, works ....lb.	.35	–
Phthalic anhydride, flake, c.l., t.l., dms., frt. equald ....lb.	.30	–
molten, tanks, same basis ....lb.	.27	–
Prices 1-1½c. per lb. higher on the West Coast		
Phthalimide, flake, works ....lb.	.85	–
Phthalocyanine blue toner, red shade, bbls., frt. alld. E. of Rockies ....lb.	8.45	
green shade, same basis ....lb.	9.30	
resinated, bbls., same basis ....lb.	9.10	

Phthalocyanine blue toner, water dispersible, bbls., same basis ....lb.	9.45	17.30
Phthalocyanine green toner, all grades, bbls., frt. alld. E. of Rockies ....lb.	9.30	14.00
Phthalocyanine green toner, resinated, bbls., same basis ....lb.	8.65	9.45
Phthalylsulfacetamide, dms., 500-kilo lots ....kilo.	8.51	–
Picolines, refd, mixed, bulk ....kilo	2.81	–
Picric acid, pure paste, 25-lb. ctns., c.l., dry basis, f.o.b. Charlotte, N.C. ....lb.	6.00	–
tech., paste, 25-lb. ctns., t.l., dry basis, f.o.b. Charlotte, N.C. ..lb.	5.00	–
Pigment green S, kgs ....lb.	2.20	–
Pilocarpine hydrochloride, USP, dms ....kilo.	1,500.00	2,000.00
Pimento see Allspice		
Pimento leaf oil, dms ....lb.	13.90	–
Pine oil, 80% min. alcohol content, bulk, f.o.b. works ....100 lbs	47.00	53.00
dms., c.l., t.l., same basis ....100 lbs	51.00	54.00
a-Pinene, perfume grade ....kilo	1.62	–
tech. grade ....lb.	.18	.23
b-Pinene, perfumery grade. tanks. .kilo	2.30	–
tech. grade. tanks ....lb.	.35	.40
Piperazine, anhyd., dms., t.l. frt. alld. E ....lb.	1.80	–
Piperazine citrate, 38%, dms. 1,100-lb. lots, frt. alld ....lb.	2.25	2.35
Piperazine dihydrochloride, 53%, dms., t.l., frt. alld ....lb.	2.00	–
Piperazine hexahydrate, 44%, dms., 1,100-lb. lots, frt. ald. ....lb.	1.80	–
Piperazine phosphate, 42%, dms., t.l., frt. alld ....lb.	1.80	–
Piperidine dist. 98% min., dms., c.l., t.l., works ....kilo.	6.92	–
Piperonyl butoxide dms., dlvd. E. ..lb.	5.00	–
Platinum, metal, works .... Troy oz.	533.00	–
Polycarbonate resin, pellets, nat., t.l., frt. alld ....lb.	1.84	1.86
Polyester resin, unsaturated, g.p., orthophthalic, bulk, tankcars, frt. alld ....lb.	.51	.53
isophthalic, same basis ....lb.	.56	.62
Polyethylene resin, high-density, blow molding, g.p., hopper cars, frt. alld ....lb.	.44	.52
injection molding, g.p., hopper cars, frt. alld ....lb.	.43	.46
extrusion, g.p., hopper cars, same basis ....lb.	.47	.48
wire and cable, nat., hopper cars, same basis ....lb.	.54	.65
wire and cable, black, same basis ....lb.	.65	.75
Polyethylene resin, low-density, film liner, hopper cars, frt alld. .lb.	.35	.38
clarity film, hopper cars, frt. alld ....lb.	.35	.37
pallet shrink film, hopper cars, same basis ....lb.	.35	–
extrusion coating, hopper cars, same basis ....lb.	.36	.42
g.p., hopper cars, same basis .lb.	.37	.38
Polyethylene linear low-density g.p. resin	.38	.40
blown film resin	.40	.43½
cast film resin	.40	.45
Polyethylene resin, low-density injection molding, g.p., hopper cars, same basis ....lb.	.45	.46
line wire, CATV, power cable. .lb.	.70	1.15
wire and cable thermoplastic high-voltage, natural color, same basis ....lb.	.80	.90
wire and cable, XLPE low voltage, 14% carbon black, same basis ....lb.	.66	.73
wire and cable jacketing, black lb.	.60	.61
Polymyxin sulfate, USP, bulk, 50-billion units min ....million units	.52	–
Polyoxyethylene sorbitan monostearate, dms., 20,000-lb. lots, works ....lb.	.76	–
Polyoxyethylene sorbitan tristearate, dms., 20,000-lb. lots, works ....lb.	.73	–
Polypropylene resin, homopolymer, g.p., nat., t.l., frt. alld ....lb.	.45	.46
copolymer, med. impact, nat., same basis ....lb.	.50	.56
high impact, same basis ....lb.	.53	.60
Colored material 5c. per lb. higher for each grade.		
Polystyrene resin, cryst., nat., hopper cars, frt. alld ....lb.	.47	–
impact, nat., hopper cars, same basis ....lb.	.48	.50
high heat, high impact, nat., hopper cars, same basis ....lb.	.46	.52
expandable beads (EPS), pkging grade, 1,000-lb. lots ....lb.	.69	–
modified, same basis ....lb.	.71	.73
Polyvinyl alcohol, fully hydrolyzed, medium viscosity, bgs., t.l., dlvd ....lb.	1.00	1.05
partially hydrolyzed, medium viscosity, bgs., t.l., dlvd ....lb.	1.05	–
Polyvinyl chloride resin, g.p., homopolymer dispersion, bgs., t.l, dlvd ....lb.	.60	–
g.p. suspension, bulk, same basis ....lb.	.66	–
pipe grade, bulk, same basis ....lb.	.47	–
film grade, bulk, same basis ....lb.	.67	.47
Polyvinyl chloride, g.p. copolymer dispersion, same basis ....lb.	.58	.61
g.p. copolymer suspension, same basis ....lb.	.45	.46
Poppyseed, Dutch, bgs ....lb.	.59	–
Turkey, bgs ....lb.	.53	–
Potash agricultural (see Potassium muriate).		
Potash, caustic, liq., 45% basis, tanks, works ....100 lbs.	13.00	–
West Coast, 50% basis, tanks, ex terminal ....100 lbs.	16.08	–
reg. flake, 88-92%, 400-lb. dms., c.l., works ....100 lbs.	42.35	–
Potassium acetate, NF, gran., dms., t.l. works E ....lb.	.90	1.31
Potassium bicarbonate, tech., gran., bgs., c.l., works ....lb.	.81½	–
Potassium bicarbonate, USP, gran., dms., t.l. ....lb.	.72	–

Potassium bichromate, gran., 400-lb. dms., c.l., t.l., works ....lb.	.48	–
Potassium bifluoride, tech., dms., t.l., works., frt. equald ....lb.	.45	.48
Potassium bitartrate, NF, gran., powd., bgs ....lb.	.90	1.20
Potassium borohydride, powd. dms., 100-1,000 lbs., works ....lb.	19.00	20.00
Potassium bromate, gran., powd., 200-lb. dms., c.l., f.o.b. works ....lb.	1.06	–
Potassium bromide, NF., gran., dms., c.l. f.o.b. works ....lb.	1.12	–
Potassium carbonate, liq., 47% K_2CO_3, tanks, t.w., works ....100 lbs.	14.60	–
dms., c.l., t.l., works ....100 lbs.	20.65	–
calcined, 99-100% K_2CO_3, hopper cars or trucks, works ....100 lbs.	32.50	–
bgs., c.l., t.l., works ....100 lbs.	35.20	–
drums ....100 lbs.	66.40	–
Potassium carbonate, gran., purif., 400-lb. dms., 5-dm. lots ....lb.	.40	.46
Potassium chlorate, cryst., dms., c.l., works ....lb.	.14½	–
powd., dms., c.l., works ....lb.	.30	–
purif., gran., 325-lb. dms., f.o.b. shipping point ....lb.	.40	–
Potassium chloride, chemical grade, 99.95% KCl, bulk, c.l., f.o.b works ....ton	105.00	–
USP cryst. dms ....lb.	1.12	–
USP gran., dms ....lb.	.67	–
USP powd., dms ....lb.	.67	–
Potassium chloride, agricultural (see Potassium muriate).		
Potassium chromate, purif., cryst., dms., works ....lb.	.57	–
Potassium citrate, NF, gran., 200-lb. dms., frt. alld ....lb.	.93½	–
Potassium cyanide, dms., 20,000-lb. lots or more, f.o.b. works. .lb.	1.32	–
Potassium dichromate (see Potassium bichromate).		
Potassium fluoborate, tech., dms., c.l., t.l., works, frt. equald ....lb.	1.40	1.42
Potassium fluoride, anhyd., dms., t.l. ....lb.	1.66	–
Potassium gluconate, dms., t.l., f.o.b. works ....lb.	1.45	–
Price W. of Denver 4c. per lb. higher.		
Potassium guaiacolsulfonate, 300-lb. dms., 600 lbs. or more frt. equald ....lb.	2.10	–
Potassium hydroxide, tech. (see Potash, caustic).		
Potassium hydroxide, USP, pellets, 100-lb. dms., c.l., t.l., works, frt. equald ....lb.	1.61	1.33
Potassium iodide, USP, gran., cryst., dms., 1,000-lb. lots dlvd. ..lb.	10.72	12.39
ACS grade truckload ....lb.	11.82	13.55
Potassium-magnesium sulfate, std., bgs., works ....ton	59.00	–
basis 40% K_2SO_4 and 55% $MgSO_4$ bulk, works ....ton	67.00	–
Potassium metabisulfite, gran., dms., t.l. ....lb.	.44	–
Potassium muriate, 60-62.4% min. K_2O, std., bulk, c.l., frt. equald., f.o.b. Sask., Canada ....ton	44.00	45.00
soluble, fine std., f.o.b. Sask ....ton	47.00	–
coarse, f.o.b. Sask ....ton	46.00	50.00
gran., f.o.b. Sask ....ton	50.50	51.50
Potassium nitrate. fert. grade, std., 50-ton c.l., dlvd. SE ....ton	267.00	274.00
prilled ....ton	277.00	284.00
tech., gran., bgs., c.l., min. 50 tons, dlvd ....ton	470.00	–
Potassium oxalate, neutral. tech., fine gran., powd., 300-lb. dm., frt. equald ....lb.	2.54	–
Potassium pentaborate, gran., bgs., c.l., works ....lb.	1.01	–
dms., same basis ....lb.	1.06	–
Potassium pentaborate powder 15c. per lb. higher.		
Potassium perchlorate, dms. c.l., works ....lb.	.76	–
Potassium permanganate, free flowing, bulk, hopper trucks, works ....lb.	1.09	–
50-kg. dms., same basis ....lb.	1.20	–
150-kg. dms., same basis ....lb.	1.17	–
Potassium permanganate, USP, 50-lb. kgs., works, c.l., t.l. ....lb.	1.38	–
Potassium persulfate, 225-lb. dms., 24,000 lbs. or more, f.o.b. plant ....cwt.	78.60	–
cl/tl same basis ....cwt.	72.50	–
Potassium pyrophosphate tetrabasic, bgs., c.l., t.l., works, E., frt. equald ....100 lbs.	63.75	64.00
liquid, bulk ....100 lbs.	46.00	46.50
Potassium salicylate, USP, gran., 200-lb. dms., 2,000 lbs. or more, works. frt. alld ....lb.	1.52	–
USP, powd., 800-lb. dms., 2,000 lbs. or more, same basis ....lb.	1.42	–
Potassium silicate, soln., 29.6-30.2 Be., 2.5 ratio, t.c., t.t., works ....100 lbs.	18.90	–
dms., c.l., t.l., works. 100 lbs.	25.90	–
Potassium silicate, 40-40.5 Be., 2.1 ratio, t.c., t.t., works ....100 lbs.	25.05	–
40-40.5 Be., 2.1 ratio, dms., c.l., t.l., works ....100 lbs.	32.05	–
Potassium silicate, electronics grade, 30-30.4 Be., 2.1-2.2 ratio, t.c., t.t., works ....100 lbs.	28.10	–
dms., c.l., t.l., works. 100 lbs.	33.10	–
solid or glass, 2.15 ratio, dms., c.l., t.l., works ....100 lbs.	53.30	–
solid or glass, 2.5 ratio, dms, c.l., t.l., works	45.65	–
"Ratio" indicates percentage by weight of SiO_2 divided by percentage by weight of K_2O.		
Potassium silicofluoride, bgs., c.l., t.l., frt. equald ....lb.	.11½	.15
Potassium-sodium tartrate, NF, gran. or powd., dms ....lb.	.80	1.20
Potassium sorbate, t.l, dms., dvd. .lb.	2.50	3.10
Potassium stannate, dms., frt. alld. .lb.	N.A.	–
Potassium sulfate, agricultural grade, min. 50% K_2O std., bulk, c.l., f.o.b. works ....ton	150.00	160.00
Potassium sulfate, gran., purif. 400-lb. dm ....lb.	.86	–

Potassium tetraborate, gran., bgs., c.l. works ....lb.	1.10	–
dms., same basis ....lb.	1.15	–
Potassium tetraborate powder 15c. per ton higher		
Potassium thiocyanate, USP, cryst., 225-lb. dms., 5-dm. lots. ..lb.	4.01	–
tech., cryst., dms., t.l. ....lb.	.62	–
Potassium titanate, ctns., c.l., works ....lb.	.71¼	–
Potassium-titanium fluoride, tech., dms., t.l., works, frt. equald lb.	1.24	[illegible]
Potassium-zirconium fluoride, tech., dms., t.l., works, frt. equald ....lb.	.78	–
Prednisone USP. dms., 5 kilos or more ....gram	1.03	–
Prednisolone acetate, USP, dms., 5 kilos or more ....gram	1.12	–
Prednisolone, anhyd., USP, dms., 5 kilos or more ....gram	1.12	–
Procaine hydrochloride, USP, antibiotic grade, dms., 2,000-lb. lots, frt. alld ....lb.	4.95	[illegible]
Procaine hydrochloride, USP, ampule grade, dms., 1,000-lb. lots, frt. alld ....lb.	4.95	[illegible]
Propionaldehyde, tanks, f.o.b. ....lb.	.35½	–
Propionic acid, syn., pure, tanks, dlvd. E ....lb.	.33	[illegible]
n-Propyl acetate, tanks, dlvd ....lb.	.53½	–
n-Propyl alcohol, tanks, dlvd ....lb.	.42	[illegible]
n-Propyl gallate dms., 100 to 2,000-lb. lots, dlvd ....lb.	11.50	–
n-Propyl-p-hydroxybenzoate, USP, 500 kilos ....kilo	10.80	–
tech., 500 kilos, f.o.b. ....kilo	10.36	–
Propyl paraben (see n-Propyl-p-hydroxybenzoate)		
Propyl thiouracil, dms., 50-kilo lots or more ....kilo.	65.00	–
n-Propylamine, dms., c.l., dlvd ....lb.	.75	[illegible]
Propylene, polymer grade, f.o.b. Tex. and La. Gulf Coast points .lb.	.17¾	–
chemical grade same basis ....lb.	.16¾	[illegible]
Propylene glycol, indust., tanks, f.o.b. lb.	.40	[illegible]
USP, tanks, f.o.b. E ....lb.	.43	[illegible]
Propylene glycol monomethyl ether, tanks, dlvd. E. ....lb.	.49	–
Propylene oxide, tanks, f.o.b. works, frt. equald ....lb.	.47½	–
Psyllium seed, USP powd bgs ....lb.	1.50	1.75
Pumice, dom., fine, 4F-0, bgs., ton lots ....ton	270.00	–
medium, 0½-1½, bgs., ton lots . ton	300.00	–
coarse, 2-extra coarse, bgs., ton lots ....ton	300.00	–
Pumice, imp., Italian, fines, bgs., ton lots f.o.b. East Coast ....ton	280.00	–
medium, bgs., ton lots. f.o.b. East Coast ....ton	350.00	–
coarse, bgs., ton lots f.o.b. East Coast ....ton	300.00	–
Pyrazolone red (red 38), dms., works ....lb.	13.00	[illegible]
Pyrethrum flowers, fine grd. 0.9% pyrethrins, ton lots, frt. ald. lb.	1.91	–
Pyrethrum, purif., 20% pyrethrins, dms., works ....lb.	37.50	[illegible]
Pyridine, refd., 2-deg., c.l., works dms ....kilo	5.90	–
tanks ....kilo	5.70	–
Pyridoxine hydrochloride, USP, 100 kilos or more, dlvd ....kilo.	36.00	–
Pyrites, Canadian 46-50% S. mines ....long ton	4.50	[illegible]
Pyrogallic acid (see Pyrogallol)		
Pyrogallol, 100-lb. dms., 1,000-lb., lots, dlvd ....lb.	13.70	[illegible]

Q

Quassia chips ....lb.	.57	–
Quinacridone maroon, dms., frt. alld ....lb.	27.00	[illegible]
red, dms., frt. alld ....lb.	24.25	[illegible]
violet, dms., frt. alld ....lb.	24.90	–
Quince seed, bgs ....lb.	2.00	[illegible]
Quinidine sulfate, USP, 1,000-oz. dms., 2,000 oz. or more. .oz.	4.20	[illegible]
Quinine hydrochloride, NF, 1,000-oz. dms., 2,000 oz. or more. .oz	2.45	[illegible]
Quinine sulfate, USP XVIII, 1,000-oz. dms., 2,000 oz. or more. .oz.	2.30	[illegible]
Quinoline, dms., t.l., frt. equald ....lb.	1.49	–
tanks, same basis ....lb.	1.43	–

R

R salt tech., 304 molecular wt. ....lb.	2.12	–
Racemethionine, USP, 50-250 kilos ....kilo	8.80	–
250-500 kilos ....kilo	8.60	–
500 or more kilos ....kilo	8.50	–
feed grade, 99% min., c.l., t.l. ....lb.	1.07	–
Rapeseed oil, dms ....lb.	.68½	[illegible]
Rauwolfia serpentina root, powd. bls., dms ....kilo.	22.00	–
Red carmine. No. 40 (see Carmine No. 40)		
Red precipitate. (see Mercuric oxide, red).		
Reserpine, USP, cryst., bots ....gram.	.40	[illegible]
Resorcinol tech., bgs., t.l., works. dlvd ....kilo.	3.96	–
Resorcinol, USP, cryst., dms. 50 kilos or more, works ....kilo.	8.35	–
powd. dms., same basis ....kilo.	8.90	–
Resorcinol monoacetate, dms., 1,000 lbs. or more ....lb.	1.96	–
Rhodamine red toner, molybdated, PMA, dms., works ....lb.	9.25	–
tungstated, PTMA, dms., f.o.b. works ....lb.	11.50	14.00
Rhodinol, 25-lb. cns ....lb.	[illegible]	[illegible]
syn., dms ....lb.	[illegible]	[illegible]
Rhubarb root, India, whole, bgs ....lb.	[illegible]	[illegible]
powd., bgs ....lb.	[illegible]	[illegible]
Riboflavin, feed grade, 25 kilos, dlvd ....kilo	[illegible]	[illegible]
Riboflavin, USP, 25 kilos, dlvd ....kilo	[illegible]	[illegible]
Riboflavin-5-phosphate-sodium, kilo lots ....kilo	[illegible]	[illegible]

Rice bran oil, refined dms. t.l. ....lb.	1.25	–
Ricinoleic acid (see Castor oil acids, split).		
Rochelle salt (see Potassium-sodium tartrate).		
Roofing pitch (see Coaltar pitch, roofing.)		
Rose oil, nat., NF, Bulgarian, otto, bots ....kilo.	5,700.00	–
Turkish, otto., bots ....kilo.	8,500.00	7,500.00
Rosemary oil, NF, Spanish, dms. . kilo	6.00	11.00
Tunisian, dms ....kilo	15.00	17.50
Rotenone resin, 30-45%, 100-lb. dms. works ....unit-lb.	.21	.23

S

Saccharin NF, gran., soluble, dms. 1,000-lb. lots, frt. alld ....lb.	2.50	2.75
Saccharin NF, powd., soluble, dms., less than 20,000-lb. lots, frt. alld. .lb.	3.75	–
Safflower oil, non-break. tanks, N.Y. ..lb.	.55	–
edible dms., N.Y., dlvd ....lb.	.75	.76
Sage leaves, Dalmatian, No. 1, bgs. lb.	1.95	–
Albanian, bgs ....lb.	1.65	–
Turkish ....lb.	1.25	1.30
Sage oil, Clary, French, bots. ....kilo	165.00	180.00
Dalmatian, cns ....lb.	14.50	–
Spanish, cns ....kilo	16.00	21.00
Salicylaldehyde, tanks, f.o.b ....lb.	3.60	–
Salicylamide, NF, gran., powd., dms., 2,000-lb. lots, one ship ....lb.	1.07	1.10
Salicylic acid, tech., dms., c.l., t.l., works ....lb.	1.23	1.41
USP, cryst., dms., 1,000 lbs. or more ....lb.	1.33	1.63
USP, powd., dms., 1,000 lbs. or more ....lb.	1.66	–
Salol (see Phenylsalicylate).		
Salt, evaporated, common, 80-lb. bgs., c.l., t.l., North, works. .80 lbs.	4.02	–
bulk, same basis ....ton	60.00	61.20
chemical grade, same basis. . 80 lbs.	4.30	–
Salt, rock, medium, coarse, same basis ....80 lbs.	2.70	–
bulk, same basis ....ton	16.00	25.00
Saltcake, dom., bulk, works, 100% Na_2SO_4 basis, f.o.b. works E ton	85.00	98.00
same basis W ....ton	90.00	99.00
Sandalwood oil, E. Indian ....kilo	165.00	–
Indonesia ....kilo	102.00	–
Sarcosine, tech., tanks, works, frt. equald ....lb.	.50	–
Schaeffer's salt, paste, dms., 100% basis, works ....lb.	2.66	–
Scopolamine hydrobromide, USP, 100-oz. lots bots ....oz.	36.00	46.50
Sebacic acid, CP, bgs., c.l. works. .lb.	1.95	–
purif., bgs., c.l., works ....lb.	1.84	–
Seidlitz mixture, dms., 5,000-lb. lots. lb.	.30½	–
Selenium, powd., 99.99% Se, dms., dlvd ....lb.	13.00	–
coml., 99.5% Se. same basis ....lb.	10.00	15.00
Senna leaves, Alexandria, whole and half, bls ....lb.	.75	.80
Tinnevelly, No. 1, bls ....lb.	.70	.71
powd., bbls, bxs ....lb.	.90	1.10
Sesame oil, USP, dms., t.c.l. ....lb.	1.00	1.20
Sesame seed, Central American, hulled, bgs ....lb.	.55	.58
Sienna pigment, burnt, paper bgs., t.c.l. works ....lb.	.19½	.26½
raw, paper bgs., t.c.l., works ....lb.	.16¼	.23¾
Silica, amorph. dry-grd., bgs., c.l., works 98%, 200 mesh ....ton	31.00	32.50
99%, 200 mesh ....ton	32.00	33.50
99%, 97%, 325 mesh ....ton	34.50	35.50
99.5%, 325 mesh ....ton	37.00	–
99.5%, 325 mesh ....ton	51.50	54.50
Silica, dry-grd., bgs., c.l., works, 99.9%, 400 mesh, micronized ....ton	72.00	75.50
99% under 15 microns, micronized ....ton	79.50	82.50
99% under 10 microns, micronized ....ton	104.00	105.00
Silica, hard-quartz, 99.5% SiO_2, 325 mesh, bgs., c.l., works. .. ton	37.00	–
140 mesh, bgs., c.l., works. .. ton	34.75	–
Silicon tetrachloride, tech., dms., c.l., works ....lb.	.60	–
tanks, works ....lb.	.38	–
Silver bullion, ingots, ce., Troy ....oz.	5.755	–
Silver cyanide, 80% Ag, 600-oz. lots oz.	4.666	–
Silver nitrate, ACS, 58.2 Troy oz. AG/100 avoir. oz. $AgNO_3$ ....oz.	3.437	–
Soapbark, crushed, bls ....lb.	1.00	–
powd., bls ....lb.	1.35	1.65
Soda ash, dense, 58%, 100-lb., paper bgs. c.l., works, f.o.b. ....ton	120.00	–
bulk, c.l., same basis ....ton	83.00	–
light 58%, 100-lb., paper bgs., c.l., same basis ....ton	160.00	–
bulk, c.l., same basis ....ton	123.00	–
Soda, caustic, liq., 50%, sellers tanks, Gulf Coast works, f.o.b., frt. equal., 76% Na_2O ....ton.	175.00	185.00
73%, same basis ....ton.	205.00	225.00
flake, 76%, 400-lb. dms, c.l. works. .ton.	500.00	870.00
solid, 76%, 700-lb. dms, c.l., works		
gran., 76%, 450-lb. dms, c.l., works ....ton.	820.00	570.00
beads, 76%, 400-lb. dms., c.l., works ....ton.	520.00	–
Prices for liq. rayon-type, $15 ton higher. Prices in West 70c. higher for solid, and $20–$30 ton higher for gran. and beads.		
Soda, sal, conc., bgs., c.l. works ....100 lbs.	3.35	3.66
Sodium acetate, anhyd., bgs., c.l., f.o.b. works ....lb.	.54	–
Sodium acetate, USP, 60%, gran. 100-lb. dms., c.l., works ....lb.	.57	–
Sodium alginate, NF, white powd., dom., 300 lbs. or more ....lb.	6.00	8.75
Sodium p-aminosalicylate, dms., 100-lb. lots or more, f.o.b. works ....lb.	4.73	–
Sodium arsenate, bgs., c.l., dlvd. E. lb.	1.46	1.50
Sodium ascorbate, USP, dms., 100 kilos ....kilo.	8.30	10.50
Sodium benzoate, tech., bgs., c.l., t.l., frt. alld ....lb.	.70½	–
Sodium benzoate, USP, 50-lb. bgs., c.l., t.l., frt. alld ....lb.	.83½	–
ton-lots, same basis ....lb.	.86½	–
50-lb. dms., c.l., t.l., same basis. .lb.	.89	–
ton-lots, same basis ....lb.	.92	–

Sodium bicarbonate, USP, powd., reg. grade, bgs., c.l., t.l., works, frt. equald ....100 lbs.	17.05	–
coarse, same basis ....100 lbs.	16.05	–
fine, same basis ....100 lbs.	17.20	–
gran., same basis ....100 lbs.	17.65	–
gran., fine, same basis ....100 lbs.	17.80	–
Sodium bichromate, gran., bgs. c.l., t.l., works, frt. equald ....lb.	.57	–
Sodium bifluoride, 400-lb. dms., c.l., frt. equald ....lb.	.76	–
100-lb. bgs., c.l., same basis. ..lb.	.76	–
Sodium bisulfate, bulk, c.l., works. .. ton	175.00	–
dms., c.l. ....100 lbs.	13.00	–
Sodium bisulfite, anhyd. bgs., c.l., t.l., works, East ....100 lbs.	28.50	–
works, West ....100 lbs.	32.00	–
Sodium bisulfite, soln., 38%, bulk, 100% basis, works, East ....100 lbs.	20.60	–
soln., 100%, bulk, works, West 100 lbs.	20.00	–
photographic grade, 48% soln., works ....100 lbs.	21.90	–
Sodium borate NF, gran., bgs., c.l., works ....lb.	.51	–
powd., same basis ....lb.	.52	–
Sodium borohydride, powd., dms., 1000-5000 lbs. works ....lb.	19.86	21.90
Sodium borohydride, stabilized water soln., 12% $NaBH_4$, 100% basis, 3000 gal. tankwagon, works. lb.	17.46	–
Sodium bromide, 99%, gran., 400-lb. dms., f.o.b. works ....lb.	1.04	–
Sodium carbonate, decahydrate, bgs, c.l., t.l., works ....ton.	264.00	–
Sodium carbonate, cryst. monohydrate (see Soda, ash)		
Sodium carbonate, monohydrated, bgs., c.l., t.l., works ....ton	392.00	–
Sodium carboxymethyl cellulose (see CMC.)		
Sodium chlorate, crystal, bulk, t.c., t.l., delivered, N.E ....ton	330.00	–
delivered, S.E ....ton	335.00	–
Sodium chlorate, cryst., 450-lb. dms., c.l., works. E ....lb.	.27	–
Sodium chloride, tech. (see Salt)		
Sodium chloride, USP, gran., bgs. ..lb.	.29	–
Sodium chlorite, tech., dms., c.l., works ....lb.	1.17	1.27
Sodium chromate, anhyd., dms., c.l., t.l., works ....lb.	.67	–
Sodium chromate, tetrahydrate, bgs., c.l., t.l., works ....lb.	.64	–
Sodium citrate, gran., anhyd., 200-lb. dms., c.l., t.l., N.Y ....lb.	1.65	–
Sodium citrate, USP, gran., dihydrate, 100-lb. bgs., t.l., f.o.b. shipping point ....lb.	.74½	–
Sodium cyanate, dms. 1,000-lb. lots, works ....lb.	.85	–
Sodium cyanide, briquettes or gran., 98% min., 200-lb. dms, min., dlvd ....lb.	.71	–
Sodium diacetate, anhyd., dms., c.l., works ....lb.	.68	–
Sodium diacetate, FCC, 50-lb. bgs., t.l., dlvd. E. of Rockies ....lb.	.61	.67
Sodium diacetate, tech., 50-lb. dms., c.l., works ....lb.	.52	–
Sodium erythorbate, powd., gran., t.l. or mixed t.l., f.o.b. shipping point ....lb.	2.60	2.85
Prices W. of Denver 2c. per pound higher.		
Sodium ferrocyanide, bgs, t.l., works ....lb.	.60	–
Sodium fluoborate, tech., gran., dms., t.l., works, frt. equald ....lb.	1.77	–
Sodium fluoride, white, 97%, 400-lb. dms., c.l., works, frt. equald.. lb.	.6345	–
100 bgs., c.l., same basis ....lb.	.60	–
USP powd., 200-lb. dms., t.l., f.o.b. shipping point ....lb.	4.69	–
Sodium formate, bgs., c.l., works. .lb.	.20	–
Sodium gluconate, tech., 50-lb. bgs., 2,500 lbs. or more frt. alld. .lb.	.60	–
Sodium hydride, oil dispersion, 60% NaH, 187-lb. dms., 10 dms., works ....lb.	1.66	–
Sodium hydrosulfide. (see Sodium sulfhydrate.)		
Sodium hydrosulfite, dms., c.l., t.l., f.o.b. shipping point E ....lb.	.64	–
Sodium hydroxide, USP, pellets, 100-lb. dms., c.l., t.l., works, frt. equald ....lb.	.66	1.06
Sodium hydroxide, tech. (see Soda, caustic.)		
Sodium hypophosphite, EN grade, 300 lb. dms f.o.b. works ....lb.	1.425	1.50
110 lb. dms ....lb.	1.47	1.52
Sodium hyposulfite (see Sodium thiosulfate).		
Sodium iodide, USP, cryst., 300- to 500-lb. lots, dms. frt. equald ....lb.	14.72	–
Sodium lauryl sulfate, 30%, tanks, f.o.b. works ....lb.	.26	.32
Sodium lignin sulfonate, bgs., c.l., works ....100 lbs.	25.50	–
Sodium metabisulfite (see Sodium bisulfite).		
Sodium metaborate, octahydrate, gran., bgs., c.l., works ....lb.	.38	–
tetrahydrate, gran, bgs, c.l., works ....lb.	.46	–
Sodium, metallic, 12-lb. bricks, dms., c.l. works ....lb.	.93	–
fused, dms. 24,000-lb. lots or more, works ....lb.	.87	–
tanks, works ....lb.	.70	.80
Sodium metaphosphate, tech. bgs., c.l., f.o.b. shipping pt. frt. equald ....100 lbs.	61.50	–
food grade, bgs. c.l. f.o.b. frt. equald. ....100 lbs.	68.25	–
Sodium metasilicate, anhyd., bgs., c.l. works ....100 lbs.	27.25	–
bulk, c.l., works ....100 lbs.	25.30	–
pentahydrate, bgs., c.l., f.o.b. shipping point ....100 lbs.	18.95	–
bulk, c.l. works ....100 lbs.	17.20	–
Sodium molybdate, anhyd., dms. f.o.b. works, 100 lbs and over. .lb.	4.87	–
cryst., dms., t.l., same basis ....lb.	4.12	–
Sodium naphthionate, dms., c.l., t.l., f.o.b. works ....lb.	2.00	–
Sodium Nitrate, USP, bgs., c.l., f.o.b., frt. equald ....100 lbs.	34.50	–
Sodium nitrate, dom., industrial, bgs., c.l., works ....ton	284.00	292.00
bulk, c.l., works ....ton	250.00	–
Imp., coml., 100-lb. bgs., c.l., Atl., or Gulf whse ....ton	205.00	214.00
bulk, c.l., same basis ....ton	182.00	–
Imp., agricultural, bulk, c.l., same basis ....ton	140.00	–
Sodium nitrite, USP, dms., c.l., works, frt. equald ....100 lbs.	37.25	–

Sodium orthosilicate, tech., anhyd., bgs., c.l., works ....100 lbs.	34.50	–
Sodium orthosilicate, tech., hydrated, flake, dms., c.l., works. 100 lbs.	27.45	–
bgs., c.l., works ....100 lbs.	26.25	–
Sodium oxalate, 99%, bgs., t.l., works. lb.	.45	–
Sodium pentachlorophenate, beads c.l., 30,000-lb min ....lb.	.87	–
bgs ....lb.	.86	–
Sodium pentobarbital (see Pentobarbital-sodium).		
Sodium perborate, tetrahydrate, tech., bgs., c.l., t.l., works ....lb.	.32½	.66½
Sodium persulfate, 225-lb. dms., 24,000 lbs. or more, f.o.b. plant ....lb.	.63½	–
55-lb. bgs. same basis ....lb.	.62	–
Sodium phenobarbital (see Phenobarbital-Sodium).		
Sodium phenosulfonate, powd., dms., lb.	.75	–
Sodium phosphate, anhyd., dibasic tech., bgs., c.l., t.l., works, frt. equald ....100 lbs.	54.50	–
food grade, same basis. 100 lbs.	57.50	–
Sodium phosphate, monobasic, tech., same basis ....100 lbs.	55.75	–
food grade, same basis. 100 lbs.	59.75	–
tribasic, tech., same basis. 100 lbs.	52.25	52.75
food grade, same basis. 100 lbs.	63.25	–
chlorinated, same basis. 100 lbs.	31.50	–
cryst., tech., same basis. 100 lbs.	30.50	–
cryst., food grade, same basis ....100 lbs.	35.50	–
USP, dried, powd., bgs., dms., works ....lb.	.19	.20½
Sodium picramate, tech., paste. 200-lb. dms., dry basis, dlvd. ..lb.	5.50	–
Sodium propionate, dms., 2,000 lbs. or more, f.o.b. frt. alld ....lb.	.54	–
Sodium pyrophosphate, acid, tech., bgs., c.l., works, frt. equald. 100 lbs.	58.25	–
food grade, non-leavening, bgs., c.l., works. frt. equald. .. 100 lbs.	61.25	–
Sodium pyrophosphate, ferric, dms., c.l., t.l., works ....lb.	.3880	–
Sodium pyrophosphate, tetrabasic, anhyd., tech., bgs., c.l., t.l., works, frt. equald. .. 100 lbs.	44.75	–
bulk, hopper cars, same basis ....100 lbs.	42.50	–
food grade, bgs., c.l., t.l., same basis ....100 lbs.	53.00	–
Sodium salicylate, USP, cryst., 200-lb. dms., 1,000-lb. lots or more, works, frt. equald ....lb.	3.00	–
USP, powd., 200-lb. dms., 1,000-lb. lots or more, same basis.. lb.	3.05	–
Sodium sesquicarbonate, bulk, c.l., t.l., works ....ton.	170.00	–
bgs, c.l., t.l. works ....100 lbs.	166.00	–
Sodium silicate, solid, or glass, 3.22-3.25 ratio, bulk, c.l., t.l., works ....100 lbs.	15.70	–
bgs., c.l., t.l., works ....100 lbs.	27.75	–
1.65-2.00 ratio, bulk, c.l., t.l., works ....100 lbs.	20.30	–
bgs., c.l., t.l., works ....100 lbs.	22.15	–
soln., 37.6° solid, 3.22-3.25 ratio, bulk, c.l., t.l., frt. equald ....100 lb.	6.30	–
"Ratio" indicates percentage by weight of SiO_2 divided by percentage by weight of Na_2O.		
Sodium silicofluoride, bgs., c.l., t.l., works, frt. equald... 100 lbs.	17.65	16.75
Sodium stannate, dms. wks. frt. alld. E lb.	N.A.	–
Sodium sulfanilate, dms, works ....lb.	.22	–
Sodium sulfate, NF XII, powd., dms., 2,000-lb. lots ....lb.	.23½	–
tech., detergent, rayon-grade, c.l., works. Gulf ....ton	90.00	96.00
Sodium sulfate, West, bulk, c.l., works, frt. equald ....ton	90.00	101.00
bulk, c.l., East, same basis ....ton	113.00	114.00
Sodium sulfate, photo grade, 100-lb. bgs., c.l., works ....ton	47.00	53.00
Sodium sulfhydrate, flake, 70-72%, dms., c.l., works, frt. equald ....ton	500.00	–
liq., 44-46%, tanks, works, frt. equald ....ton	500.00	–
Sodium sulfide, flake, dms., c.l., works, E., frt. equald ....ton	470.00	–
bgs., same basis ....ton	410.00	–
Sodium sulfide, fused, dms., c.l., works, E., frt. equald. ...ton	240.00	–
Sodium sulfite, anhyd., tech. 95-100% bgs, f.o.b. works ....100 lbs.	23.76	–
Sodium sulfocyanide CP (see Sodium thiocyanate).		
Sodium tetraborate (see Borax).		
Sodium tetrasulfide. liq. 34%. dms., c.l., works., frt. equald ....ton	540.00	–
Sodium thiocyanate, purif., cryst., 250-lb. dms., 5 dms. or more f.o.b. works ....lb.	3.28	–
tech., anhyd. dms., 2,000 lbs. or more, works ....lb.	.97	–
Sodium thiosulfate, tech., photo-grade, anhyd., 100-lb. bgs., c.l., t.l., works, frt. equald ....100 lbs.	45.50	–
cryst. pentahydrate, c.l., t.l., same basis ....100 lbs.	28.50	–
Sodium titanate, dms., c.l., works. .lb.	.14¼	–
Sodium trichloroacetate, 95%, 50-lb. bgs., c.l., frt. alld. E ....lb.	.28	–
Sodium tripolyphosphate, tech., bgs., c.l., t.l., works. frt. equald. 100 lbs.	39.75	–
bulk, hopper cars, same basis, 100 lbs.	37.50	–
food grade, bgs., c.l., t.l., same basis ....100 lbs.	48.50	–
Sodium tungstate, tech. high moly., dms., 10,800 lbs, or more, frt. alld ....lb.	5.00	5.50
Polin grade dms., 10,800 lbs. or more, same basis ....lb.	8.00	–
Sodium-ammonium phosphate, purif., cryst., dms., works ....lb.	.52	–
Sodium-formaldehyde sulfoxylate, dms., t.l., f.o.b. works ....lb.	.81	–
Sodium-zirconyl sulfate, dms., 1,000-lb. lots or more, works ....lb.	.28	–
tech., dms., any quantity, works. lb.	.16	–
Solvent naphtha, petroleum, straight aromatic, b.r. 320°-350°F, 56°F m.a.p., tanks:		
New Jersey ....gal.	1.62	–
Houston ....gal.	1.41	–
Illinois ....gal.	1.54	–
Solvent naphtha, petroleum, straight aromatic, b.r. 360°F-410°F, 60°F m.a.p., tanks:		
New Jersey ....gal.	1.30	1.35
Houston ....gal.	1.30	–
Illinois ....gal	1.30	1.35
Sorbic acid, t.l. dms., dlvd ....lb.	2.50	3.10

CHEMICAL PRICES

WEEK ENDING NOV 14, 1986

Sorbitan monostearate, dms., c.l., t.l., 30,000 lb. min., f.o.b. works ....lb.	.76	–
Sorbitan tristearate, c.l., t.l., 30,000 lb. min., f.o.b. works ....lb.	.60	–
Sorbitol, USP, reg. 70% aqueous, dms., c.l., f.o.b. shipping point ....lb.	.35	–
tanks, f.o.b. shipping point. .lb.	.30	–
gran., dms., c.l. t.l., works ....lb.	.70	.74
powd., dms., c.l., t.l., works ....lb.	.66	.72
Soybean meal (See Oils, Fats & Waxes market report.)		
Soybean oil (See Oils, Fats & Waxes market report.)		
Soybean oil acidulated, soapstock, 95% acid, tanks, New York lb.	.14	.15
Soybean oil, acid, dbl., dist., dms ....lb.	.48	.59
tanks ....lb.	.43	.44
s.d., dms ....lb.	.47	.56
tanks ....lb.	.38	.43
Spearmint leaves, imp., bls ....lb.	2.50	2.70
Spearmint oil, Far West, native ....lb.	9.50	–
Chinese, 60% ....lb.	5.60	–
Chinese, 80%	8.00	–
Far West, Scotch ....lb.	18.50	–
Spruce oil, dms ....lb.	6.00	–
St. John's bread, edible, bls ....lb.	.29	.30
Stannic chloride, anhyd., dms., works ....lb.	N.A.	–
Stannic oxide, dms., works ....lb.	N.A.	–
Stannous chloride, anhyd., dms. wks . lb.	N.A.	–
Stannous fluoborate, liq., conc., dms., t.l., works, frt. equald ....lb.	2.50	–
Stannous oxide, dms., works ....lb.	N.A.	–
Stannous sulfate, dms., works ....lb.	N.A.	–
Stearic acid, double pressed, bulk .lb.	.26	.36
single-pressed, bulk ....lb.	.26	.375
triple-pressed, bulk ....lb.	.32	.40
Stramonium leaves, bgs ....lb.	.15	.20
Streptomycin sulfate, USP, bulk. .kilo.	47.00	–
Strontium carbonate, glass grd., bgs., t.l., works ....lb.	.37¼	–
Strontium nitrate, 50-15 bgs., c.l., works ....100 lbs.	51.50	–
Styrene monomer, 99.6% min., t.c., t.l., f.o.b. works ....lb.	.22	.27
Styrene-acrylonitrile resin, nat., bulk, f.o.b. plant ....lb.	.77	–
cryst., bulk, same basis ....lb.	.77	.81
clear, same basis ....lb.	.77	.81
Styrol acetate, dms ....lb.	2.35	–
Succinic acid, purif., cryst., dms., t.l., frt. alld ....lb.	2.00	2.10
Succinic anhydride, dms., c.l., t.l., f.o.b. work ....lb.	1.71	–
Sucrose, refd., white, bgs., c.l., f.o.b. refy. E ....100 lbs.	33.10	–
Sucrose acetate, isobutyrate, 90% dms., t.l., dlvd ....lb.	1.18	–
tanks, dlvd ....lb.	1.10	–
100%, dms., t.l., dlvd ....lb.	1.18	–
Sucrose octa-acetate, denaturing grade, 100-lb. dms., f.o.b. works ....kilo	12.50	13.50
Sulfabenzamide, dms., 500 kilos. .kilo.	36.50	–
Sulfabenzamide-sodium, dms., 500 kilos ....kilo.	25.00	–
Sulfacetamide, USP, dms., 500 kilos ....kilo.	20.00	23.50
Sulfadiazine, USP, powd. dms., 500 kilos ....kilo.	53.00	–
Sulfadiazine-sodium, USP, dms., 500 kilos ....kilo.	40.70	–
Sulfamerazine, USP, microcrystals, dms., 500 kilos ....kilo.	33.50	–
USP, powd., dms., 500 kilos ....kilo.	32.00	–
Sulfamethazine-sodium, USP, powd. dms., 50 kilos ....kilo.	13.00	–
Sulfamethazine, powder, dms., 500 kilos ....kilo.	9.00	10.00
Sulfamic acid, cryst., bgs., c.l., t.l., works ....100 lbs.	38.00	41.00
Sulfamic acid, gran., dms., c.l., t.l., works ....lb.	.36	–
Sulfanilamide, NF, reg. 1,000-lb. dms., frt. equald ....lb.	2.00	–
Sulfanilic acid, tech., bgs., t.l., f.o.b. works ....lb.	.67½	–
Sulfaquinoxaline, veterinary, grade, dms ....lb.	8.00	–
Sulfur, crude, bright, molten, dom., f.o.b. vessels, Gulf ports ....long-ton	150.00	–
f.o.b. La. refy ....long-ton	125.50	–
recovered, dlvd., Houston. long-ton	125.50	–
ex terminal, Rotterdam .... long ton	135.00	–
f.o.b. tanks, Alberta, Canada, for US delivery ....long-ton	102.00	–
dark, ex-Tampa, Fla ....long-ton	157.50	–
Sulfur, crude, 99.5% min. purity, coml. flour, 50-lb. bgs., c.l., mines basis ....100 lbs.	13.60	–
lump, same basis ....100 lbs.	18.50	–
Sulfur, refd., 99.5% min. purity, rolls 50-lb. bags, c.l., mines basis ....100 lbs.	17.50	–
flour, light, 50-lb. bgs., same basis ....100 lbs.	20.00	–
Sulfur, refd., sublimed, NF, 99.85% min. purity, 50-lb. bgs., c.l., mines basis ....100 lbs.	26.00	–
Sulfur, rubbermakers, 99.5% min. purity, coml., reg., 50-lb. bgs., c.l., mines basis ....100 lbs.	14.60	–
fine, 98% min. passing through 325 mesh, same basis. .100 lbs.	15.60	–
Sulfur dichloride, dms., c.l., works, frt. equald ....lb.	.24	–
tanks, same basis ....lb.	.17¼	–
Sulfur dioxide, liq., bulk, t.c., t.t., f.o.b. works ....ton	290.00	–
Sulfur monochloride, dms., c.l., works, frt. equald ....lb.	.22½	–
tanks, same basis ....lb.	.16¼	–

CHEMICAL PRICES

WEEK ENDING NOV 14, 1966

Sulfuric acid, virgin 100% tanks, works,		
East Coast ... ton	71.75	86.90
Gulf Coast ... ton	75.00	86.40
Midwest ... ton	80.25	–
Southeast ... ton	68.15	–
West Coast ... ton	85.00	–
NOTE: For prices on 60 and 66 Be., multiply by .7757 and .9319, respectively. For price of 20% fuming oleum, as is, add $3-$4 to above prices and multiply by 1.045.		
Sulfuric acid, smelter, 100% tanks, works,		
Gulf Coast ... ton	48.00	52.00
New Mexico ... ton	20.00	25.00
Southeast ... ton	63.15	–
93%, tanks, dlvd., Northwest ... ton	80.00	55.00
Sunflowerseed oil, crude, f.o.b. Minneapolis ... lb.	.15½	.18
Superphosphate, triple, 46% or more, a.p.a., run-of-pile, bulk, c.l., Fla. ... unit-ton	2.75	3.05
bulk, gran., c.l., Fla. ... ton	160.00	165.00

T

Talc, dom., grd. New York bgs., c.l., works ... ton	84.00	–
30.5%, 325 mesh, bgs., c.l., works ... ton	84.00	80.00
Talc, dom., 98.5%, 400 mesh, micronized, bgs., c.l., works ... ton	187.00	238.00
825 mesh, micronized, bgs., c.l., works ... ton	200.00	–
dom., ord., Calif. grd., bgs., c.l., works ... ton	90.00	–
ord., Vermont, off-color grd., bgs., c.l., works ... ton	138.00	–
Imp., Canadian, grd., bgs., c.l., works ... ton	70.00	84.00
Tall oil, crude, Southeast, tanks, works, frt. equald ... ton	90.00	100.00
Tall oil, refd., acid, same basis ... lb.	.31	–
dist., tanks, same basis ... lb.	.19	.23
Tall oil acids, 2% or more rosin, tanks, works, frt. equald. ... lb	.20½	.23½
less than 2% rosin acid ... lb.	.22	.27
Tallow (see Oils, Fats & Waxes market report.)		
Tallow, fatty acids, tech., non-ref. dms., c.l., dlvd. ... lb.	.37	.40
tanks, dlvd. ... lb.	.28	.45
hydrogenated, tech., flake, bgs., c.l., dlvd ... lb.	.37	33
tanks, dlvd ... lb.	.35	42
Tangerine oil, Fla. dms. f.o.b. ... lb.	8.50	8.50
Italian, dms. ... kilo	52.90	–
Tankage, animal feeding, 9-11% NH_3, New York, bulk ... unit-ton	5.50	–
Tankage, frt. grade (see Nitrogenous process tankage).		
Tannic acid, NF, fluffy, bbls. 1,000-lb. lots ... lb.	8.09	–
tech., powd., dms ... lb.	4.62	–
Tar acid oil, 15-18% t.l. dms., f.o.b. works ... gal.	1.40	–
25-28%, t.l., dms., f.o.b. works ... gal.	1.59	–
50-53%, t.l., dms., f.o.b. works ... gal	1.87	–
Tartaric acid, NF, bgs. ... lb.	1.20	1.50
Tellurium, metallurgical, f.o.b works ... lb.	12.00	–
Terpin hydrate, NF, imp., cryst., powd., 38 kilo drums, f.o.b. ship. pt., frt equald ... lb.	1.35	–
Terpineol ... lb.	1.10	1.50
Terpinyl acetate, extra, dms ... lb.	2.40	–
prime, dms. ... lb.	1.35	2.05
Terpinyl propionate, dms. ... lb.	4.50	–
Tetrachloroethylene, tech. (see Perchloroethylene).		
Tetrachloroethylene, USP, dms, c.l., t.l., works ... lb.	.30½	–
Tetraethyl orthosilicate, bulk, f.o.b. works ... lb.	1.53	1.68
Tetraethylene glycol, tanks, frt. alld. ... lb.	.57	–
Tetraethylene glycol diacrylate, t.l. dms., f.o.b. works ... lb.	1.50	–
Tetraethylenepentamine, tanks, same basis ... lb.	1.70	1.75
Tetraethylthiuram disulfide, tech., flake, dms., t.l. frt. alld ... lb.	.68	2.07
Tetrahydrofuran dms., c.l., t.l., f.o.b. works ... lb.	1.02	–
tanks, same basis ... lb.	.96	–
Tetrahydrofurfuryl alcohol tanks, f.o.b. Memphis, Tenn. ... lb.	.90	–
Tetrahydrolinalool, syn., dms. ... lb.	7.20	–
Tetrahydrophthalic anhydride dms., c.l., t.l. f.o.b. works ... lb.	.85	–
Tetrapotassium phosphate (see Potassium phosphate, tetrabasic).		
Tetrasodium pyrophosphate (see Sodium pyrophosphate, tetrabasic)		
Thallium metal, dlvd. ... lb.	35.00	–
Thallium sulfate, 38%, bots., dlvd. ... kilo	140.00	–
Theobromine, bulk f.o.b works ... kilo	140.00	150.00
Theophylline, USP, anhyd. 50-kilo dms., 10,000-kilo lots ... kilo	12.00	12.85
Thiamine hydrochloride, USP 100-kilo dms., dlvd. ... kilo	33.00	–
Thiamine mononitrate, USP, 100-kilo, dms., dlvd. ... kilo	33.00	–
Thiodiphenol, 98%, dms., f.o.b. works ... lb.	3.35	–
Thioflavin green toners, molybdated, PMA dms ... lb.	5.40	8.05
tungstated, PTA, dms ... lb.	5.50	5.85
Thioglycolic acid, refd., dms., ton lots 100% acid basis ... lb.	2.07	–
Thioindigoid maroon, dms., frt. alld ... lb.	7.60	–
reds, dms., frt. alld ... lb.	5.88	8.12
Thionyl chloride, high-purity, 99.8%, 24,000-lb. min. t.l., dms. frt. equald ... lb.	.55	–
Thorium nitrate, purif., dms., 100-lb. lots or more, works ... lb.	2.75	–
dl-Threonine, dms 10 kilos wks. ... kilo	128.00	–
Thyme leaves, French, bgs. ... lb.	1.45	–
Spanish, bgs. ... lb.	.75	–
Thyme oil, NF, red, dms. ... kilo	20.00	–
NF, white, dms. ... kilo	22.00	–
Thymol, NF ... lb.	3.75	8.15
Thymol iodide, dms., 100-lbs. f.o.b. works ... lb.	52.30	58.20
Tin metal (NY composite) ... lb.	N.A.	–
Titanium dioxide, anatase, bgs., 20-ton lots, frt. alld. ... lb.	.77	.79
slurry shipments, 50-ton lots, dry basis, frt. alld ... lb.	.76	–
Titanium dioxide, rutile, reg., bgs., 20-ton lots, frt. alld. ... lb.	.81	.84
slurry shipments, 50 ton lots, dry basis, frt. alld ... lb.	.84	–
Non-chalking rutile material costs 1c. per pound more.		
Titanium hydride powd. electronics grade, dms. ... lb.	26.50	–
Titanium tetrachloride, tech., bulk, c.l., f.o.b. works ... lb.	.30	.35
200-gal cylinders c.l., same basis ... lb.	.50	–
Titanium sponge, 88.3%, fiber drums, less than 5,000 lbs. f.o.b. wks. ... lb.	4.85	–
Tobias acid, 2,000 lbs. or more ... lb.	2.45	–
d-a-Tocopherols, 87%, dms. ... kilo	50.08	–
d-a-Tocopheryl acetate, 81% conc., dms. ... kilo	57.48	–
d-a-Tocopheryl acid succinate, cryst., dms ... kilo	78.44	–
dl-a-Tocopherol, dms. ... kilo	27.40	–
dl-a-Tocopheryl acetate, USP 50-kilo dm. 1000 kilo min. ... kilo	16.00	18.50
50% dry powd., 50-kilo dm. ... kilo	17.00	–
Tolu balsam, cns. ... lb.	7.60	9.68
Toluene, petroleum, ind. or nitration, tanks		
Atlanta, Ga., dlvd ... gal.	.70	–
Bayonne, N.J., dlvd ... gal.	.70	–
Baytown, Tex., f.o.b. ... gal.	.70	–
Chicago, Ill. dlvd. ... gal.	.70	–
Clairton, Pa., f.o.b. ... gal	.70	–
Deer Park, Tex., f.o.b. ... gal.	.70	–
Ft. Wayne, Ind., dlvd. ... gal.	.70	–
Gulf Coast, spot, barges ... gal.	.87	–
Houston, Tex., dlvd. ... gal.	.70	–
New Jersey Metro, dlvd ... gal.	.70	–
Philadelphia, Pa., dlvd. ... gal.	.70	–
Providence, R.I., dlvd. ... gal.	.70	–
Toluene di-isocyanate (mixed isomers), 80%, 2,4- and 20% 2,6-isomers, jumbo tankcars, dlvd. ... lb.	1.01	–
p-Toluenesulfonamide, powd., dms., t.l., works ... lb.	3.55	–
m-Toluidine, tech., bulk ... lb.	3.10	–
o-Toluidine, tech., liq., dms. c.l. ... lb.	.72	.75
bulk, same basis ... lb.	.60	.94
p-Toluidine, tech. cast solid, dms., cl., works ... lb.	1.90	1.85
Liq., tanks, same basis ... lb.	1.70	–
flake, same basis ... lb.	1.95	–
Toluidines, mixed, o-m-p, tech., liquid, c.l. f.o.b. works ... lb.	1.03	–
bulk same basis ... lb.	.95	–
Tolyltriazole, dms., 1,000-lb. lots, f.o.b. Cincinnati, Ohio ... lb.	2.80	–
Tonka beans, Angostura, prime, 1,000-lb. lots ... lb.	6.50	–
Toxaphene, dms., c.l., t.l., works ... lb.	.38	–
Tragacanth gum, No. 1, ribbons, cns. ... lb.	36.00	40.00
flaked powder ... lb.	12.50	15.00
Triacetin tanks, dlvd. E ... lb.	.75	–
Tributyl citrate, t.l., drums, f.o.b., works ... lb.	1.70	–
Tributyl phosphate, tanks, works ... lb.	1.65	1.77
Tributylamine, dms., c.l., dlvd. ... lb.	1.39	–
tanks, same basis ... lb.	1.33	–
Trichloroacetic acid, tech., 300-lb. dms., c.l., f.o.b., works ... lb.	.94	–
USP, 100-lb. dms., frt. equald. ... lb.	.36½	–
1,2,4-Trichlorobenzene, pure, tanks, dlvd. ... lb.	.81½	–
1,1,1-Trichloroethane, tanks, consumers, dlvd. ... lb.	.40½	–
1,1,2-Trichloroethane, tanks, f.o.b. works ... lb.	.42	–
Trichloroethylene, tanks, dlvd. ... lb.	.39½	–
Trichloroisocyanuric acid, dms. ... lb.	1.25	–
Trichlorophenoxyacetic acid (see 2,4,5-T).		
Tricholine citrate, 65%, soln., non-ret. dms., 1,500-lb. lots, dlvd. ... lb.	1.35	–
Tricresyl phosphate, tanks, f.o.b. works ... lb.	1.80	1.75
Tridecyl alcohol, mixed isomers, tanks, dlvd. ... lb.	.57	–
Triethanolamine, 85%, tanks, dlvd. E. ... lb.	.35	.37
99%, tanks, same basis ... lb.	.35	.37
Triethanolamine lauryl sulfate, tanks, f.o.b. works ... lb.	.27½	.27½
Triethylamine, dms., c.l., dlvd. ... lb.	1.33	–
tanks, same basis ... lb.	1.20	–
Triethyl citrate, t.l., drums, f.o.b., works ... lb.	1.82	–
Triethyl phosphate, tanks, dlvd. ... lb.	1.15	–
Triethylene glycol, tanks, f.o.b. Gulf ... lb.	.47	–
Triethylene glycol dipelargonate, tanks f.o.b. works ... lb.	.29½	–
40-50% tanks, 100% basis, frt. equald. ... lb.	.35	–
Triethylenetetramine tanks, frt. equald. ... lb.	1.43	1.45
Tri-iso-tolyl trimellitate, f.o.b. works ... lb.	.51	.55
Tri-isobutylene, tanks, dlvd. ... lb.	.45	–
Tri-isopropanolamine, dms., c.l., frt. alld. E. ... lb.	.57½	–
Trimethylamine, anhyd., tanks, frt. equald., 100% ... lb.	.54½	–
25% soln., tanks, frt. equald., 100% basis ... lb.	.63½	–
40% soln., tanks, frt. equald., 100% basis ... lb.	.56½	.57
Trimethylolpropane bgs c.l. t.l. dlvd. ... lb.	.73	–
Trimethylolpropane triacrylate, t.l. dms., f.o.b. works ... lb.	1.50	–
Tripentaerythritol, tanks, frt. alld., E ... lb.	1.00	–
Triphenyl phosphate, dms., t.l., frt. equald ... lb.	1.84	.78
Tripropylene glycol tanks, frt. alld. E. ... lb.	.84	–
Tris-(hydromethyl) nitromethane, solid, t.l. works ... lb.	.605	–
Trisodium phosphate (see Sodium phosphate, tribasic).		
l-Tryptophan, dms, 25-kilo lots ... kilo	62.00	65.00
Tung oil, tanks, imp. New York ... lb.	.31	.33
Tungstic acid 92½%, dms., 1,750-8,000 lbs., works ... lb.	12.85	–
Turmeric, Alleppey 5% ... lb.	.66	–
Turmeric, Alleppey over 6% ... lb.	.69	–
Turpentine, crude sulfate tanks, f.o.b. Southeast works ... gal.	.70	.80

U

Ultramarine blue pigments, 650-2,000 lb.-lots, works ... lb.	1.30	–
violet, same basis ... lb.	2.20	–
Umber pigment, burnt, American, frt. equald. ... lb.	.13½	.16½
raw, American, dom., bgs., l.c.l., same basis ... lb.	.13½	.14¾
Undecylenic acid, dms., works ... lb.	2.70	–
Urea, 46% N, ind., bulk, Gulf Coast, 50-ton c.l. ... ton	200.00	–
46% N, agricultural, barges, f.o.b. Gulf Coast, granular ... ton	75.00	80.00
46% N, agricultural, f.o.b. Midwest terminals, granular ... ton	100.00	–
Uva-Ursi leaves, bls. ... lb.	.22	–

V

Valerian root, Belgian, bgs ... lb.	.85	.85
Indian, bgs. ... lb.	.45	–
Vanadium oxytrichloride, 3,000 lb. cyls., works ... lb.	5.40	–
Vanadium pentoxide, tech., gran., per lb. of V_2O_5, 550-lb. dms., works ... lb.	4.10	4.94
fused or flake, per lb. V_2O_5, 550-lb. dms., works ... lb.	3.35	3.65
Vandyke brown, bags., t.l., frt. equald. ... lb.	.27¼	–
Vanilla beans, Madagascar ... lb.	37.00	–
Java, tins ... lb.	27.00	30.00
Vanillin, USP, dms., f.o.b works ... lb.	8.25	–
Imp., dms ... lb.	4.75	5.00
Varainol Ag ... lb.	.64	–
Vetiveryl acetate, dms. ... kilo	80.50	–
extra ... lb.	63.00	–
Vetiver oil, Bourbon, dms. ... lb.	49.00	–
Chinese ... lb.	18.00	–
Haitian ... lb.	26.50	–
Java ... kilo	34.00	–
Victoria blue toners, molybdated, PMA dms. ... lb.	6.20	8.30
tungstated, PTA, dms. ... lb.	10.40	–
Vinyl acetate monomer, tanks, dlvd. ... lb.	.39	–
Vinyl chloride monomer, polymer grade, tanks, f.o.b. works ... lb.	.26	–
Vinyl ether, USP, anesthesia, 75-cc. bots., hospitals ... bots.	1.56	–
2-Vinylpyridine t.l., dms. works ... kilo	7.81	–
tanks, works ... kilo	7.81	–
Vinyltoluene, bulk, f.o.b. ... lb.	.87	.73½
Vitamin A, synthetic, dry, pharm., 500,000 A units per gm., 50-kilo lots ... kilo	33.00	–
Vitamin A, liq. in oil, pharm., 1,000,000 A units per gram, 10 kilo lots ... kilo	41.00	–
Vitamin A, feed grade, 650,000 units per gm. ... kilo	16.70	23.85
Vitamin B_1 (see Thiamine hydrochloride).		
Vitamin B_2 (see Riboflavin and Yeast).		
Vitamin B_{12}, cryst., non-sterile, USP (cyanocobalamin), vials, 50-gram, lots ... gram	8.00	3.75
Vitamin B_{12} 1% trituration of cryst. B_{12} (cyanocobalamin USP) with dicalcium phosphate, 25-kilo dms. ... kilo	10.75	12.75
Vitamin B_{12}, 0.1% trituration of cryst. B_{12} (cyanocobalamin USP) with mannitol, 25-kilo dms. ... kilo	15.80	–
Vitamin B_{12}, cobalamin concentrate NF with mannitol. 1,000 mcg. per gram, dms, ... per gram activity	19.45	–
Vitamin B_{12}, 1% Vitamin B_{12}, USP, absorbed on resin, 5-kilo dms., 500-gram lots, frt. alld. per gram activity	15.65	–
Vitamin B_{12}, 1% cobalamin concentrate, NF, absorbed on resin, 5-kilo dms., frt. alld. per gram activity	15.40	–
Vitamin B_{12}, 1% cyanocobalamin in gelatin, 2.5-kilo dms., frt. alld. ... per gram activity	15.40	–
Vitamin C (see Ascorbic acid).		
Vitamin D (see Cholecalciferol)		
Vitamin D_2 (see Codliver and Fishliver oils).		
Vitamin E (see a-Tocopherol and Wheat germ oil).		
Vitamin H (see Biotin).		
Violet methyl toner (see Methyl violet toner)		

W

Warfarin 0.5%, dms., ton lots, frt. alld. New York or Chicago ... lb.	.75	–
Wheat germ oil, cold-pressed ... gal.	18.50	17.50
cold-processed ... gal.	14.00	–
White precipitate, USP, powd., 100-lb. dms., f.o.b. works ... lb.	7.882	11.24
Whiting (see Calcium carbonate).		
Wintergreen oil, syn. (see Methyl salicylate).		
Witch hazel bark, bls. ... lb.	1.35	–
leaves, bls. ... lb.	1.75	–
400 mesh, bgs., c.l. works ... ton	134.00	–
325 mesh, bgs., c.l. works ... ton	117.00	–
high aspect ratio, bgs., works ... ton	164.00	–
Wollastonite, t.l., f.o.b., producing plant, general grade ... ton	200.00	–
325 mesh ... ton	140.00	141.00
400 mesh ... ton	160.00	–
1250 mesh ... ton	500.00	–
Wool grease, USP (see Lanolin).		
Wormseed oil (see Chenopodium oil, NF)		
Wormwood oil, cns. ... lb.	31.00	–

X

Xanthan gum, food 300-lb. dms., f.o.b. works ... lb.	5.65	8.20
Ind., grade, same basis ... lb.	4.54	–
Xylene, petroleum, ind. or nitration, tanks		
Alliance, La., f.o.b. ... gal.	.78½	–
Atlanta, Ga., dlvd. ... gal.	.78½	–
Bayonne, N.J., dlvd ... gal.	.78½	–
Bayonne, N.J. f.o.b ... gal.	.78½	–
Baytown, Tex., f.o.b. ... gal.	.78½	–
Chicago, Ill., dlvd. ... gal.	.78½	–
Clairton, Pa. ... gal.	.78½	–
Ft. Wayne, Ind., dlvd. ... gal.	.78½	–
Gulf Coast, spot, barges ... gal.	.78½	–
Houston, Tex., dlvd. ... gal.	.76	.78
New Jersey Metro, dlvd ... gal.	.78½	–
Xylene, petroleum, ind. or nitration, tanks		
Philadelphia, Pa., dlvd. ... gal.	1.36	–
Providence, R.I., dlvd. ... gal.	1.42	–
South Bend, Ind., dlvd. ... gal.	1.37	–
m-Xylene, high purity, tanks, f.o.b. Texas City, Tex. ... lb.	.36	–
o-Xylene, tanks, works ... lb.	.125	.14
p-Xylene, tanks, dlvd. ... lb.	.195	–
m-Xylenediamine, dms., t.l., f.o.b. works ... lb.	1.70	–
2,4-Xylidine, tech., liq., c.l., t.l. f.o.b. works ... lb.	1.50	–
Xylidines, mixed, o-m-p., dms., c.l., t.l., f.o.b. works ... lb.	1.00	–

Y

Yara yara, 25-lb. cns. ... lb.	2.81	–
Yeast, pure brewer's debittered, NF, Saccharomyces, t.l. f.o.b. works ... lb.	1.10	–
Yerba, santa leaves, bls. ... lb.	2.40	–
extra, bots. ... lb.	26.50	31.75
Ylang-ylang oil, extra grade ... lb.	36.50	–
grade 1 ... lb.	25.00	–
grade 2 ... lb.	25.00	–
grade 3 ... lb.	22.00	–

Z

Zein, bgs., 2,000-lb. lots ... lb.	7.50	9.30
Zinc acetate, NF, dms. ... lb.	1.00	1.75
tech., dihydrate, bgs., t.l., works ... lb.	1.60	–
Zinc borate, tech., 43% ZnO, 37% B_2O_3, 50-lb. bgs., 20,000-lb. t.l., f.o.b. works ... lb.	.55	–
cryst., 37% ZnO, 49% B_2O_3, 250-lb. dms 20,000 lbs. t.l. f.o.b. wks. ... lb.	.89	–
Zinc chloride, USP, gran., dms ... kilo	9.79	–
Zinc chloride, tech., soln. 50%, tanks, f.o.b. Cleveland, Ohio ... 100 lbs.	20.20	–
Concord, N.C ... 100 lbs.	20.20	–
Freeport, Tex ... 100 lbs.	20.20	–
Old Bridge, N.J ... 100 lbs.	20.20	–
65 degree, same basis Cleveland, Ohio ... 100 lbs.	27.90	–
Concord, N.C. ... 100 lbs.	27.90	–
Old Bridge, N.J. ... 100 lbs	27.90	–
70 degree, same basis Cleveland, Ohio ... 100 lbs.	29.70	–
Concord, NC ... 100 lbs.	29.70	–
Old Bridge, NJ ... 100 lbs.	29.70	–
72 degree, same basis Cleveland, Ohio ... 100 lbs.	33.20	–
Concord, NC ... 100 lbs.	33.20	–
Old Bridge, NJ ... 100 lbs.	33.20	–
Zinc chromate, bgs., dlvd. ... lb.	1.12	–
Zinc cyanide, dms., c.l ... lb	1.65	2¼
Zinc dust pigment type 1 & 2, dms., c.l., f.o.b. plant ... lb	.59	.67
Zinc ethylenediamine tetracetic acid, 8.4% Zn., ammonia salt soln., t.c., t.l., f.o.b. works ... lb.	.56	–
9% Zn., ammonia salt soln., t.c., t.l., f.o.b. works ... lb.	.48	–
Zinc fluoborate, liq. conc., dms., t.l., works, frt. equald. ... lb.	.66	–
Zinc metal, high grade, dlvd ... lb.	.47	.50
Zinc naphthenate, liq. 8% Zn, dms., dlvd ... lb.	.95	–
Zinc nitrate, tech., flake 300-lb. dms. ... lb.	.34	.35
Zinc oxide photo conductive, bgs., c.l., frt. alld. ... lb.	.60	.60
Zinc oxide, USP 50-lb. bxs., c.l., frt. alld. ... lb.	.59	.65
Zinc oxide pigment, American process, lead-free bgs., c.l., frt. alld. ... lb.	.57	.58
Zinc oxide pigment, French process regular, bgs., c.l., frt. alld. ... lb.	.55	.57½
Zinc phenolsulfonate, purif., gran., 250-lb. dms., t.l., frt. alld. ... lb	1.82	–
Zinc pyridinethione, 48% dispersion, dms., f.o.b. works ... lb.	8.50	8.80
industrial grade	14.50	–
Zinc resinate precip. 7.2-7.8% Zn, dms., frt. alld. ... lb.	.45	–
Zinc silicofluoride, dms., c.l., t.l., works ... lb.	.17	.265
Zinc stearate, USP, bulk, t.l. ... lb.	.92	1.06
Zinc sulfate, gran., monohydrate, industrial grade 36% Zn., bgs., c.l., works ... 100 lbs.	30.00	32.00
agricultural grade powd., bulk, same basis ... 100 lbs.	26.50	–
Zinc yellow (see Zinc chromate).		
Zinc-ammonium chloride, bgs., c.l., works ... lb.	.42	–
Zinc undecylenate, dms., works ... lb.	4.67	4.70
Zinc-formaldehyde sulfoxylate, basic 200-lb. dms., frt. alld. ... lb.	1.05	–
Zircon gran. bgs., bulk c.l., works ... ton	165.00	177.00
Zircon milled bgs., 200 and 325 mesh, c.l., works ... ton	225.00	–
Zirconium acetate soln., 25% ZrO_2, dms., c.l., 30,000 lbs. min., works ... lb.	.97	–
22% ZrO_2, same basis ... lb.	.78	–
Zirconium hydride, powd., electronic grade, dms., works ... lb.	.31	.75
Zirconium oxide, powd., coml., dms., 2,000 lbs. min. ... lb.	4.25	–
electronic, same basis ... lb.	7.25	[illegible]
insulating, stabilized, 325°F same basis ... lb.	3.31	3.42
insulating, unstabilized, 325°F same basis ... lb.	3.55	3.75
dense, stabilized, 30F, same basis ... lb.	2.82	–
Zirconium oxychloride, liq., ctns. 5-ton lots, works ... lb.	.91	[illegible]

CHEMICAL IMPORTS

US imports of chemicals and related materials are reported in this section by CPI material. Listings include consignee where possible, container, net weight, name of vessel (in parenthesis), port of origin and date of shipment's arrival in New York or the Port of Newark.

US chemical imports/exports are tabulated monthly in the market reports.

A-B

ACETYL CHLORIDE Pan American Container 82 dms (30754 lbs) (Atlantic Compass) Liverpool, 10/20.
ACRYLAMIDE Drew 490 bgs (27701 lbs) (Ming Moon) Kobe, 10/13.
ADIPIC ACID 1280 bgs (71958 lbs) (Tulova) Constanza, 10/9.
AGAR Pemy 20 dms (2205 lbs) (Act 2) Auckland, 10/17.
TicGums 20 dms (2399 lbs) (Ever Globe) Osaka, 10/17.
Afranaport 50 dms (9063 lbs) (American Georgia) Rotterdam, 10/12.
American Shpg 440 bgs (25415 lbs) (Lircay) Valparaiso, 10/16.
CGM French Line 450 bgs (38978 lbs) (Atlantic Compass) LeHavre, 10/14.
Harold Pepper 37 bgs (Stuttgart Express) Hamburg, 10/15.
ALDEHYDE C-17 Votainer Consolidation Servi 1 dms (121 lbs) (Stuttgart Express) Rotterdam, 10/15.
ALUMINUM OXIDE Rhone Poulenc 114 dms (43730 lbs) (Liberty) Marseille, 10/14.
Panalpina 4 bxs (981 lbs) (American Georgia) Bremerhaven, 10/12.
Agsco 96 dms (40040 lbs) (Stuttgart Express) Hamburg, 10/15.
Treibacher 96 dms (40040 lbs) (Stuttgart Express) Bremerhaven, 10/15.
US Bronze Powder 70 dms (45150 lbs) (Stuttgart Express) Dublin, 10/15.
Treibacher 1750 bgs (197201 lbs) (Dart Continent) Bremerhaven, 10/8.
96 dms (40040 lbs) (Dart Continent) Bremerhaven, 10/8.
Treibacher 192 dms (80080 lbs) (Dart Britain) Bremerhaven, 10/15.
Gardner Asphalt 180 dms (44842 lbs) (Atlantic Compass) Gothenburg, 10/20.
180 dms (44842 lbs) (Atlantic Compass) Gothenburg, 10/20
SCAC Transport 191 dms (45478 lbs) (Husum) Hamburg, 10/10.
Sterling Mfg 70 dms (41262 lbs) (Sea Land Developer) Bremerhaven, 10/10.
AMINOGUANIDINE BICARBONATE Penson 880 bgs (39313 lbs) (Zim Savannah) Osaka, 10/17.
AMMONIUM PERSULFATE Degussa 720 bgs (39842 lbs) (Dart Continent) Bremerhaven, 10/8.
ANILINE DYES Mobay Chemical 84 dms (7444 lbs) (Rouen) Rotterdam, 10/16.
[illegible] BLUE UHFC 360 bgs (39883 lbs) (American Georgia) Bremerhaven, 10/12.
[illegible] Fiber Freight 5 dms (2697 lbs) (Colombo) Vo-[illegible], 10/20
[illegible] ALDEHYDE 14 tnk (36420 lbs) (Stuttgart Express) Antwerp, 10/15
ANNATTO SEED Kellys America 30 bgs (3322 lbs) (Schackenborg) Sto Tomas, 10/17.
ASCORBIC ACID Takeda 7 ctn (117 lbs) (American Illinois) Yokohama, 10/14.
[illegible] Proses Product 796 dms (09736 lbs) (Valiant) Istanbul, 10/16
BARIUM CARBONATE Kali Chemie 720 bgs (40159 lbs) (Dart Britain) Bremerhaven, 10/15.
BARIUM HYDROXIDE ACS Chemical 10 dms (1154 lbs) (Ming Moon) Kobe, 10/13.
BARIUM SULFATE E Z & Em 840 bgs (47430 lbs) (Colombo) Leghorn, 10/20.
[illegible] Louis Furth 460 bgs (26456 lbs) (Export Freedom) Alexandria, 10/12.
Spice World 500 bgs (22049 lbs) (Export Freedom) Alexandria, 10/12.
BAY LEAVES Louis Furth 412 crt (7652 lbs) (Valiant) Izmir, 10/18.
BENZOYL PEROXIDE Agrichem 209 dms (21858 lbs) (Westermarsch) Felixstowe, 10/18.
BENZYL CYANIDE Inter Maritime Fwdg 1 tnk (43211 lbs) (Rouen) LeHavre, 10/16.
BETA HYDROXYNAPHTHOIC ACID 158 dms (33932 lbs) (Stuttgart Express) Rotterdam, 10/15.
BETA NAPHTHOL 784 bgs (43737 lbs) (Rouen) Rotterdam, 10/16.
[illegible] 780 bgs (44267 lbs) (Liberty) Leghorn, 10/14
BISMUTH SUBSALICYLATE Itac Freight Service 90 dms (5146 lbs) (Atlantic Service) LeHavre, 10/15.
BOLDO LEAVES William Bernstein 48 bls (814 lbs) (Lircay) Valparaiso, 10/18.
BONE CHARCOAL Intl Granite & Marble 400 bgs (39683 lbs) (Stuttgart Express) Rotterdam, 10/15.
[illegible] CALS Lassen Intl Fwdrs 4 bgs (449 lbs) (Dart Continent) Bremerhaven, 10/8.
[illegible] pkg (10624 lbs) (Dart Continent) Bremerhavn, 10/8.
[illegible] (4702 lbs) (Stuttgart Express) Hamburg, 10/18.

C-D

CADMIUM LITHOPONE Atlas Intermodal Transport 230 [illegible] (25353 lbs) (Ming Moon) Yokohama, 10/13.
[illegible] 90 dms (13547 lbs) (Laura Maersk) Tokyo, 10/15
CALCIUM CARBONATE H M Royal 4820 mix (248375 lbs) (American Illinois) Kobe, 10/14.
CALCIUM FLUORIDE North American Philips Light 84 [illegible] (1693 lbs) (Laura Maersk) Kobe, 10/18.
[illegible] SEEDS Buchanan Trdg 22 bgs (2227 lbs) (Schackenborg) Sto. Tomas, 10/17.
[illegible] Flavors 22 bgs (2227 lbs) (Schackenborg) Sto Tomas, 10/17.
[illegible] 250 bgs (33620 lbs) (Laura Maersk) Singapore, 10/16.
CASTOR OIL Caschem 2 bks (2204600 lbs) (Quinca) Salvador, 10/19.
[illegible] (2431967 lbs) (Shoun Universe) Bangkok, 10/18.
CHLORPHENIRAMINE MALEATE Davos Chemical 2 dms (243 lbs) (Ming Moon) Kobe, 10/13.
CHROMIUM OXIDE Reveik Chemicals 400 bgs (23698 lbs) (Tulova) Constanza, 10/9.
CIMETIDINE Panalpina 32 dms (1827 lbs) (American Georgia) Bremerhaven, 10/12.
CINNAMON Intl Brokers 26 bgs (2282 lbs) (Atlantic Compass) Liverpool, 10/20.
Max Van Pela 30 cs (2892 lbs) (American Illinois) Singapore, 10/14.
CINNAMON QUILLS Livingston Mutual 88 bls (8908 lbs) (Laura Maersk) Singapore, 10/18.
CITRIC ACID Amalgamated Metal 1400 bgs (78319 lbs) (American Illinois) Kobe, 10/14.
CITRONELLA OIL Polarome Mfg 57 dms (24681 lbs) (American Illinois) Hong Kong, 10/14.
CLAY Oan Transport 450 bgs (49904 lbs) (Westermarsch) Antwerp, 10/18.
CLOVE STEMS William E Martin 84 bgs (5857 lbs) (Laura Maersk) Singapore, 10/18.
COAL TAR INTERMEDIATES Montedison 189 mix (26058 lbs) (Liberty) Leghorn, 10/14.
350 crt (42357 lbs) (Colombo) Genoa, 10/20.
COBALT Unimodal 75 dms (14504 lbs) (Dart Britain) Felixstowe, 10/15.
COCONUT OIL SFIC Alcan 2 bks (2204800 lbs) (Shoun Universe) Colombo, 10/18.
COD LIVER OIL Twin Laboratories 75 dms (35156 lbs) (Husum) Rotterdam, 10/10
COPPER SULFATE Calabrian Intl 750 bgs (37644 lbs) (Santa Rosa Da Lim) Callao, 10/15
CORIANDER CGM French Line 1160 bgs (119049 lbs) (Atlantic Companio) LeHavre, 10/14.
CORIANDER SEEDS Ludwig Mueller 625 bgs (65115 lbs) (Valiant) Constanza, 10/18.
Transit Trdg 1250 bgs (11023 lbs) (Valiant) Constanza, 10/19.
CREAM OF TARTAR Vio 720 bgs (80159 lbs) (Liberty) Valencia, 10/14
CYANURIC CHLORIDE Lonza 320 dms (40071 lbs) (Stuttgart Express) Bremerhaven, 10/15.
320 dms (40071 lbs) (Stuttgart Express) Rotterdam, 10/15.
DEXTRIN ADHESIVE Pan American Container 9 dms (1493 lbs) (American Georgia) Rotterdam, 10/12.
DEXTROSE J H Bachmann 132 ctn (2695 lbs) (American Georgia) Bremerhaven, 10/12.
Roquette 420 bgs (42308 lbs) (Atlantic Service) LeHavre, 10/15.
DI-N-BUTYL ETHER Wacker Chemicals 78 dms (28499 lbs) (Rouen) Bremerhaven, 10/10.
DIAMINO DIPHENYLAMINE SULFONIC ACID Bamo Shpg 30 dms (9729 lbs) (Ming Moon) Kobe, 10/13.
DIANISIDINE DIHYDROCHLORIDE Nagase America 190 dms (31535 lbs) (Ming Moon) Kobe, 10/13.
DICHLOROBENZIDINE DIHYDROCHLORIDE Mitsui 60 dms (24037 lbs) (Ming Moon) Kobe, 10/13
DICYANDIAMIDE 1600 bgs (69585 lbs) (Husum) Rotterdam, 10/10.
DIETHYL MALONATE 360 can (50794 lbs) (Tulova) Constanza, 10/9.
DIETHYLENE TRIAMINE Laacheco 2 tnk (84745 lbs) (Husum) Rotterdam, 10/10.
Dorol Chemical 42 dms (18892 lbs) (Atlantic Companio) Gothenburg, 10/14.
DIMETHYL SULFOXIDE 2 con (85827 lbs) (Ever Shine) Fos, 10/18.
DIPHENYLMETHANE DI-ISOCYANATE Pat Products 2 plt (4875 lbs) (American Georgia) Felixstowe, 10/12.
DISODIUM PHOSPHATE Daruma Shpg 720 bgs (41998 lbs) (Hanjin Kobe) Keelung, 10/11.

E-H

ENZYMES Novo Laboratories 444 dms (74788 lbs) (Sea Land Developer) Bremerhaven, 10/10.
EPOXY RESIN Atlas Intermodal Transport 720 bgsd (43122 lbs) (Hanjin Kobe) Busan, 10/11.
EPSOM SALTS Potash Import & Chemical 800 bgs (793489 lbs) (Dart Britain) Bremerhaven, 10/15.
ETHYL ACETATE ICO Ind 1 bks (925932 lbs) (Quinca) Santos, 10/19.
May & Baker 1 bks (452627 lbs) (Quinca) Santos, 10/18.
ETHYL ALCOHOL New York Cosmetic 4 plt (5871 lbs) (Dart Britain) Felixstowe, 10/15.
ETHYLENE GLYCOL ACETATE Chemfleet Chemical 1 bks (1102474 lbs) (Quinca) Santos, 10/18.
EUCALYPTUS OIL 2 dms (670 lbs) (Act 2) Sydney, 10/17.
FENNEL SEED Spice Mil 490 bgs (52810 lbs) (Export Freedom) Alexandria, 10/12.
FENUGREEK SEEDS 400 bgs (44092 lbs) (Valiant) Izmir, 10/18.
FISH OIL 80 dms (36865 lbs) (Husum) Hamburg, 10/10.
FLUORINATED RUBBER Montedison 128 dms (8482 lbs) (Colombo) Leghorn, 10/20.
FLURO ANILINE Olin 10 dms (5512 lbs) (Dart Continent) Felixstowe, 10/8.
FRUCTOSE Greymor Chemical 1242 bgs (88538 lbs) (Westermarsch) Antwerp, 10/18.
FURAZOLIDONE Panalpina 400 dms (19290 lbs) (American Georgia) Bremerhaven, 10/12.
GELATIN Blue Anchor 18 dms (2143 lbs) (Stuttgart Express) Greenock, 10/15.
GLYCOL ETHER Chemfleet Chemical 1 bks (694403 lbs) (Quinca) Santos, 10/18.
GUM ARABIC Colloides Naturels 360 bgs (40478 lbs) (Atlantic Compass) LeHavre, 10/20.
GUM ROSIN Atlantic Air Express 440 bgs (40229 lbs) (American Georgia) Rotterdam, 10/12.
HEPTANOIC ACID 1 bks (1102117 lbs) (Shoun Venture) L Avere, 10/21.
HYDROFLUORIC ACID BOP Intl 86 dms (36728 lbs) (Zim Savannah) Osaka, 10/17.
HYDROXYCITRONELLAL BASF K & F 70 dms (29957 lbs) (Stuttgart Express) Antwerp, 10/15.
HYDROXYETHYL PIPERAZINE Berol Chemical 30 dms (14550 lbs) (Atlantic Compass) Gothenburg, 10/20.

I-L

IBUPROFEN Intermar Steamship 50 dms (7275 lbs) (Rouen) LeHavre, 10/18.
INOSITOL Centurion Shpg 90 dms (5195 lbs) (American Illinois) Kobe, 10/14.
Karl Schroll 60 dms (3689 lbs) (American Illinois) Kobe, 10/14.
40 dms (2593 lbs) (American Illinois) Kobe, 10/14.
INSULIN E R Squibb & Sons 16 pkg (23960 lbs) (Atlantic Compass) Gothenburg, 10/20.
ION EXCHANGE RESIN Mitsubishi Chemical Ind 81 mix (24187 lbs) (Ming Moon) Kobe, 10/13.
Sirbon Chemicals 440 bgs (33899 lbs) (Ming Moon) Kobe, 10/13.
IRON TRISTEARATE Express Consolidation System 197 bgs (5620 lbs) (Atlantic Service) LeHavre, 10/15.
ISODECYL ALCOHOL 1 bks (1212489 lbs) (Quinca) Santos, 10/19.
ISOPROPENYL ACETATE 1 dms (48 lbs) (Dart Britain) Felixstowe, 10/16.
ISOTRIDECYL ALCOHOL 1 bks (1102271 lbs) (Quinca) Santos, 10/18.
J ACID Penson 272 dms (34490 lbs) (American Illinois) Kobe, 10/14.
LACTIC CASEIN New Zealand Milk Products 513 bgs (14,178 lbs) (Westermarsch) Bremen, 10/18.
LANOLIN OIL 80 dms (38,095 lbs) (Ming Moon) Kobe, 10/13.
LEAD NITRATE Panalpina 1 bxs (1,133 lbs) (American Georgia) Bremerhaven, 10/12.
LIME OIL EL Scott 8 dms (3,929 lbs) (Santa Rosa Da Lim) Callao, 10/15.
Fritzsche Dodge & Olcott 12 dms (5,394 lbs) (Santa Rosa De Lim) Callao, 10/15.
9 dms (4,050 lbs) (Santa Rosa Da Lim) Callao, 10/15.

M-O

MAGNESIUM SULFATE Exim Line 160 bgs (8,859 lbs) (Hanjin Kobe) Kobe, 10/11.
Ocean Contract Carriers 700 bgs (39,196 lbs) (Hanjin Kobe) Kobe, 10/11.
MALEIC ANHYDRIDE Huels 720 bgs (40,962 lbs) (Rouen) Rotterdam, 10/16.
MENTHOL American Import Service 22 dms (249 lbs) (American Georgia) Rotterdam, 10/12.
Berje 40 dms (2,557 lbs) (Stuttgart Express) Hamburg, 10/15.
F X Coughlin 40 dms (2,601 lbs) (Atlantic Compass) Liverpool, 10/20.
METHANOL Panalpina 2 bxs (40 lbs) (American Georgia) Bremerhaven, 10/12.
METHYL METHACRYLATE Degussa 1 tnk (40,499 lbs) (Stuttgart Express) Bremerhaven, 10/15
METHYL RESORCINOL Accelerated Shpg 20 kgs (2,381 lbs) (Atlantic Compass) Liverpool, 10/20
METHYLHEXAHYDRO PHTHALIC ACID ANHYDRIDE Nox Crete Chemicals 1 dms (150 lbs) (Atlantic Service) Rotterdam, 10/15
MONOCHLOROACETIC ACID Robeco Chemicals 1 tnk (42,284 lbs) (Atlantic Service) Rotterdam, 10/15
198 dms (28,593 lbs) (Stuttgart Express) Antwerp, 10/15.
MONOSODIUM GLUTAMATE National Food Trdg 760 bgs (39,894 lbs) (Laura Maersk) Singapore, 10/19.
MUSK XYLOL 270 kgs (31,399 lbs) (Husum) Rotterdam, 10/10.
MYRISTYL BROMIDE Laydan Customs Expediters 8 dms (3,988 lbs) (Atlantic Compass) Liverpool, 10/20.
NICKEL SULFATE Alloychem 900 bgs (40,177 lbs) (Westermarsch) Bremen, 10/19.
NICOTINAMIDE Reilly Tar & Chemical 800 bgs (44,621 lbs) (Stuttgart Express) Antwerp, 10/15.
NITRIC ACID Panalpina 1 bxs (2 lbs) (American Georgia) Bremerhaven, 10/12.
NITROCELLULOSE Lenco Mfg 95 dms (34,304 lbs) (Sea Land Developer) Rotterdam, 10/10.
Fayette Chemical 304 dms (123,782 lbs) (Liberty) Marseille, 10/14
112 dms (34,455 lbs) (Ever Shine) Fos, 10/18.
Fayette Chemical 138 dms (41,839 lbs) (Sea Land Leader) Algeciras, 10/14.
OLEORESIN PAPRIKA EL Scott 20 dms (2,399 lbs) (Colombo) Cadiz, 10/20.
OLIVE OIL Bertolli 14,594 ctn (218,223 lbs) (Colombo), Leghorn, 10/20.
Parthenon Intl Packers 8 cs (618 lbs) (American Georgia) Felixstowe, 10/12.
Rienzi & Son 736 crt (29,465 lbs) (Colombo) Naples, 10/20.
Bertolli 8,142 crt (66,214 lbs) (American Georgia) Rotterdam, 10/12.
Goya Foods 1,945 cs (48,209 lbs) (Sea Land Leader) Algeciras, 10/14.
OREGANO AA Sayla 1,100 bgs (22,002 lbs) (Export Freedom) Istanbul, 10/12.
561 bgs (11,023 lbs) (Export Freedom) Piraeus, 10/12.
Griffith Laboratories 550 bgs (11,001 lbs) (Valiant) Istanbul, 10/18.
Griffith Laboratories 2,200 bgs (44,092 lbs) (Valiant) Izmir, 10/18.
Herbert Marmorek & Sons 1,760 bgs (35,274 lbs) (Export Freedom) Istanbul, 10/12.
Krinos Foods 1,100 bgs (22,000 lbs) (Valiant) Istanbul, 10/19.
Louis Furth 210 bgs (6,400 lbs) (Valiant) Izmir, 10/18.
McCormick 1,100 bgs (22,002 lbs) (Export Freedom) Istanbul, 10/12.
Mincing Trdg 580 bgs (11,601 lbs) (Valiant) Istanbul, 10/19.
553 bgs (11,023 lbs) (Valiant) Izmir, 10/18.
Morris J Golombeck 300 bgs (13,360 lbs) (Santa Rosa Da Lim) Callao, 10/18.
1,100 bgs (22,046 lbs) (Export Freedom) Izmir, 10/12.
OREGANO Schiff Food Products 1,650 bgs (33,069 lbs) (Valiant) Izmir, 10/18.
Birob Imports 1,200 bgs (24,001 lbs) (Export Freedom) Istanbul, 10/12.
McCormick 2,173 bgs (43,467 lbs) (Export Freedom) Piraeus, 10/12.
OXALIC ACID Navtrans Freight Fwdg 1,440 bgs (64,877 lbs) (Hanjin Kobe) Keelung, 10/11.

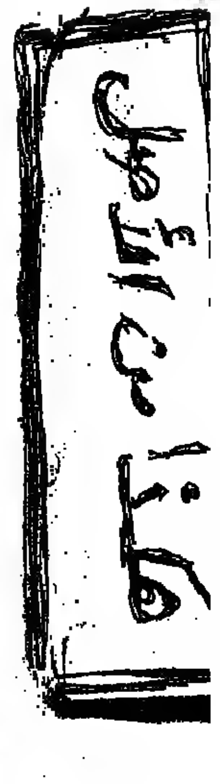
P-R

PALM KERNEL OIL Loders Croklaan 784 ctn (43,625 lbs) (Sea Land Developer) Rotterdam, 10/10.
3 bks (2,224,197 lbs) (Shoun Universe) PT Kelang, 10/18.
PAPRIKA AA Sayla 50 bgs (5,540 lbs) (Colombo) Valencia, 10/20.
AA Sayla 250 bgs (27,694 lbs) (Colombo) Valencia, 10/20.
AA Sayla 50 bgs (5,540 lbs) (Colombo) Valencia, 10/20.
PARAFFIN WAX Diana Mfg 28 bxs (1,093 lbs) (Stuttgart Express) Hamburg, 10/15.
Seagull Trdg 2 bks (4,311,250 lbs) (Quinca) Madre De Deu, 10/19.
PARAFORMALDEHYDE TR American Chemicals 940 bgs (39,473 lbs) (Liberty) Valencia, 10/14.
Lonza 4 dms (484 lbs) (Stuttgart Express) Bremerhaven, 10/15.
PENICILLIN Lassen Intl Fwdrs 40 dms (4,028 lbs) (Dart Continent) Bremerhaven, 10/8.
FC Gerlach 725 ctn (35,273 lbs) (Stuttgart Express) Greenock, 10/15.
Alltech 12 pkg (745 lbs) (Dart Continent) Felixstowe, 10/8.
PENTAERYTHRITOL Degussa 1,782 bgs (88,876 lbs) (Dart Continent) Bremerhaven, 10/8.
881 bgs (44,438 lbs) (Stuttgart Express) Bremerhaven, 10/15.
Klockner Chemical 800 bgs (39,508 lbs) (Tenglo) Valparaiso, 10/14.
Degussa 500 bgs (22,288 lbs) (Stuttgart Express) Bremerhaven, 10/15.
PEPPERMINT OIL FX Coughlin 18 dms (7,857 lbs) (Dart Britain) Felixstowe, 10/15.
Lloyd Intl Shpg 1 dms (6 lbs) (Act 2) Melbourne, 10/17.
PHENOXYACETIC ACID Glcc 1 kgs (118 lbs) (Atlantic Compass) Liverpool, 10/20.
PHENYL 3-PYRAZOLIDINE Daniel F Young 3 dms (357 lbs) (Atlantic Companio) Liverpool, 10/14.
PHENYLETHYL ALCOHOL Polarome Intl 160 dms (38,877 lbs) (Ming Moon) Yokohama, 10/13.
PHOSPHORIC ANHYDRIDE 94 dms (44,762 lbs) (Ever Shine) Fos, 10/18.
PHOSPHORUS OXYCHLORIDE Corning Glass Works 2 cs (234 lbs) (Atlantic Companio) Liverpool, 10/14.
PHOSPHORUS PENTACHLORIDE 380 hob (38,825 lbs) (Stuttgart Express) Bremerhaven, 10/15.
PHTHALOCYANINE BLUE Dainichiseika Color & Chemic 400 bgs (20,708 lbs) (Ming Moon) Yokohama, 10/13.
POLYBUTENE BP Oil 156 dms (88,985 lbs) (Liberty) Marseille, 10/14.
POLYVINYLIDENE CHLORIDE Pierce & Stevens Chemical 838 bgs (7,388 lbs) (Atlantic Compass) Gothenburg, 10/20.
POPPY SEEDS Herbert Marmorek & Sons 860 bgs (35,375 lbs) (Valiant) Izmir, 10/18.
Schiff Food Products 600 sks (37,478 lbs) (Valiant) Izmir, 10/10.
POTASSIUM FLUOROTITANATE Mitrans 880 bgs (38,977 lbs) (Hanjin Kobe) Yokohama, 10/11.
POTASSIUM HYDROXIDE Charles A Redden 343 dms (40,001 lbs) (Sea Land Developer) Bremerhaven, 10/10.
Mallinckrodt 338 dms (39,105 lbs) (Atlantic Compass) Gothenburg, 10/20.
POTASSIUM PERCHLORATE Nu Tech Chemical Inc 150 dms (41,567 lbs) (Atlantic Companio) Gothenburg, 10/14
POTASSIUM SORBATE 390 dms (42,320 lbs) (Rouen) Rotterdam, 10/16.
PYRIDOXINE HYDROCHLORIDE Centurion Shpg 40 dms (2,469 lbs) (American Illinois) Kobe, 10/14.
QUEBRACO EXTRACT Tac Tannin & Chemicals 2 con (78,263 lbs) (Lircay) Valparaiso, 10/16
QUINOLINE Howard Hall Intl 20 dms (9,833 lbs) (Atlantic Service) Rotterdam, 10/15
ROSEMARY LEAVES Wilson Group 230 bgs (15,432 lbs) (Rouen) Rotterdam, 10/18

S-T

SAGE LEAVES Herbert Marmorek & Sons 95 bls (11,023 lbs) (Valiant) Izmir, 10/18.
SCHAEFFER ACID Montedison 320 dms (86,088 lbs) (Liberty) Leghorn, 10/14.
SEBACIC ACID Polyesther 720 ctn (40,098 lbs) (Ming Moon) Hong Kong, 10/13.
SESAME OIL Summit Imports 835 ctn (33,664 lbs) (Ming Moon) Kobe, 10/13.
SILICA GEL Panalpine 17 bxs (1,016 lbs) (American Georgia) Bremerhaven, 10/12.
SILICONE OIL Inter Maritime Fwdg 33 dms (18,204 lbs) (Laura Maersk) Tokyo, 10/16.
SILICONES General Electric 58 pkg (38,567 lbs) (Stuttgart Express) Rotterdam, 10/15.
SODIUM AZIDE Pleuss Staufer Intl 11 dms (1,213 lbs) (Ming Moon) Kobe, 10/13.
SODIUM BISULFATE Coastal Ind 2 bgs (243 lbs) (Dart Continent) Antwerp, 10/8.
SODIUM CYANIDE Degussa 600 dms (130,583 lbs) (Stuttgart Express) Bremerhaven, 10/15.
John Steer 252 dms (38,389 lbs) (Export Freedom) Leghorn, 10/12.
Montedison 252 dms (38,389 lbs) (Export Freedom) Leghorn, 10/12.
SODIUM HEXAMETAPHOSPHATE Organic Specialty 350 bgs (38,735 lbs) (American Illinois) Kobe, 10/14.
SODIUM HYDROXIDE Mallinckrodt 338 dms (39,185 lbs) (Dart Continent) Bremerhaven, 10/8.
336 dms (39,185 lbs) (Atlantic Compass) Gothenburg, 10/20.
SODIUM HYPOPHOSPHITE Penson 340 dms (40,477 lbs) (Zim Savannah) Yokohama, 10/17.
SODIUM METAPERIODATE AN Deringer 14 crt (3,441 lbs) (Dart Britain) Felixstowe, 10/15.
President Container Lines 10 crt (2,458 lbs) (Dart Continent) Felixstowe, 10/8.
SODIUM PERBORATE Degussa 420 bgs (42,463 lbs) (Stuttgart Express) Antwerp, 10/18.
840 bgs (84,926 lbs) (Atlantic Compass) Antwerp, 10/20.
SODIUM PERSULFATE Degussa 720 bgs (39,842 lbs) (American Georgia) Bremerhaven, 10/12.
SODIUM TRIPOLYPHOSPHATE Marubeni America 2,280 bgs (115,711 lbs) (Ever Globe) Tokyo, 10/17.
Browning Chemical 850 bgs (45,161 lbs) (Husum) Hamburg, 10/10.
SORBITOL Nestor Reyes 384 dms (137,151 lbs) (Sea Land Developer) Rotterdam, 10/10.
SULFAMETHOXAZOLE Shionogi 84 dms (10,185 lbs) (Laura Maersk) Kobe, 10/18.
TANTALUM PENTOXIDE Trinitech Intl 30 dms (7,539 lbs) (Act 2) Melbourne, 10/17.
TETRACYCLINE HCL Universal Transcontinental 201 dms (24,372 lbs) (American Georgia) Rotterdam, 10/12.
THYME LEAVES WE Martin & Sons 280 bgs (30,882 lbs) (Ever Shine) Valencia, 10/19.
TIN OXIDE Alba Fwdg 125 dms (34,722 lbs) (Ming Moon) Yokohama, 10/13.
Magnesium Elektron 130 csk (27,209 lbs) (American Georgia) Felixstowe, 10/12.
TITANIUM DIOXIDE Hempels Marine Paints 240 bgs (16,823 lbs) (Husum) Rotterdam, 10/10.
Lukens Chemical 800 bgs (41,602 lbs) (American Georgia) Rotterdam, 10/12.
NL Ind 4,000 bgs (207,453 lbs) (Stuttgart Express) Antwerp, 10/15.

Continued on Page 68



SELECT used machinery

LARGE BIRDS

(12) 40" x 60" Bird decanter, 316 S/St, 15/3 deg. contour, 5" pitch, single leed conveyors w/Stellite herd surfacing, 80:1 gearbox, 100 HP V-belt main motor drivs. New late 60's. Excellent condition. Limited Uee. Immediately Available from Stock.

(2) 32" x 50" Bird decanter, 316 S/ST, 15/3 deg. contour, 5" pitch, single leed conveyors w/Stellite herd surfacing, 80:1 gearbox, 75 HP V-belt drive. Excellent condition. Limited Use. Immediately Available from Stock.

WYSSMONT TURBO DRYER

Stainiaes Stael, mdl L-12, steam heated, 48" dia S/ST traye & eides w/heetar controls.

VACUUM DOUBLE DRUM DRYERS

(2) Blew Knox deeigned double drum dryars, 18" x 48" & 36" x 120", chrome plated, eech w/vacuum chembers & vecuum pump peckage. Excellent condition. Reedy to Ship.

WYSSMONT DRYER

Modal N-22, 6' dia traye 22 high, with stainieas eteel contact parts. May be shipped in one piece. Steem heated.

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Ametak 8' x 12' rotery w/belt discherge, 316 eteinleee, new 1974 - Excellent condition.

-Ametek 5" x 6½' rotery w/belt discherge, 316 eteinleee. New 1974 - Excellent condition.

STAINLESS DRYER

Louieville steinieee steel steam tube dryer, 8' dia x 40', stainieee eteel cled eheil w/steinieee staal steam tubee.

Also Available:

Roto-Louvre mdl 900-32, 9' dia x 32' long, eteem heated, 30 HP motor, all fens & Flax-Cleen duet collector.

CRYSTALLIZER

Titenium contect parte, 6000 lbe p/hr cepacity. New 1976. Complete and etill installed.

RAYMOND ROLLER MILLS

★★★ Juet Purcheeed ★★★

(3) Reymond high side roller mille, model 5057, double whizzar separator, fen; feeder, cyclone, duct work & bucket elevator.

LARGE SHARPLES SUPER DECANTERS

(2) Model P8100 Sharples Super Decanter, 316 S/ST, carbide tiles, 250 HP mein drive, 126:1 gearbox w/beckdrive. New 1979. Complete. Excellent Condition.

FLUID BED DRYER

Jeffrey fluid bed dryer, 5' x 20', 304 eenitery construction, complete inetelletion including fane, dust collector, S/ST scrubber & controle.

EXCELLENT CONDITION

INDUSTRIAL FILTERS

(2) Industrial Filtar Syeytems, 600 & 200 sq. ft. each, dry cake discharga,vulcenized rubber lined tank w/316 S/ST filtar leaves, completely automatad w/computer controlled actuetors. Like New Condition

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(1) 8500 gallon 316 S/Tt reactor, 30 PSI/full vecuum internel, 15 PSI jacket, 45 PSI 316 S/ST coils, 10/15 HP 2 speed turbine agitetor, S/ST overhaed condenser. New 1977. Still inetelled. Excellent condition.

STRONG SCOTT SOLIDAIRE DRYERS

Modal SJS-24-16, 24" dia x 16' long, 304 stainieee, dimpia jecket, 50 HP veri drive.

Modal SJS-20X16, 20" dia x16' long, 316 eteinieee steel, jecketed.

Modal SJS8X52, 6" dia x 52" long stainiese, jackated, pilot eiza. Stainieee eteel mdi SJS-36-22 w/-jecket & 40 HP drive

JUST PURCHASED

Link Belt Roto-Louvra Dryer10'3'' x 36'' long, mdl #1003-36, complete eyetem incl 50 HP drive, firebox w/20,000,000 BTU gas burner, eli fene, duct work & controls, multi-cyclone collector & Sly 30,000 CFM bag-houee. Excellent Condition - Still Inetelled.We will loed - Cell for FOB Pricing

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ALFA-LAVAL NX-214SS DECANTER 20 HP
SHARPLES 48"x20" T-1800 AUTO 316 SS (2)
SHARPLES Merk 3 14" SS perf. auto baskst

MIXERS/BLENDERS

P/K 2, 10, 15, 75 cu.ft. SS Twin Shell w/bar
5, 20, 60, 70, 320 cu. ft. S/S dbl. cone w/drive
120,135, 155, 175, 250, cu.ft. dbl rib S/S
300 gal. J.H. Day Pony Mixer Steel w/can
(2) Vrieco 100 cu.ft. S/S Neuta Mixers

LITTLEFORD 42 cu. ft. S/S jkt. w/choppers
5, 100, 300, 750 S/S dbl. arm w/drive

DRYERS

Patterson 46 cu. ft. rot. vac. cyl. S/S 3'x 7'
P/K 5, 10, 570 cu.ft. SS Hq-Sol. Processor
LOUISVILLE 6x45 SS Rot. Hol Air-Steam
BOWEN 4'6" No. 2 TOWER SPRAY DRYER S/S GAS NOZZLE
Spray Dryer, Sowen 30" leb, Niro 46" utility S/S

FILTERS

SPARKLER 352 sq. ft. S/S Mod V-R-32
SPARKLER 16-D-5 S/S Vert. Tenk Press Leaf filter
2.5'x 13' S/S Vacuum Belt Filter
16",24",36",42"P/F Pressee CL Poly or S/S
SPARKLER NRC 150, 200 S/S Horiz. Press. Leaf
55,50, 150, 300 sq.ft. Press Leaf S/S

TANKS/REACTORS

29,000 GAL. HORIZ. 316SS Tanks 40# (2)
200 Gal. S/S Reactor 150#/150# W/Agit.
1,200 GAL. 316 SS REACTOR 30/75# JKT. w/agit.
12000 Gal. Horiz SS w/Top Agit. DH. Hds.
16,000 Gal. S/S Reactor 50/75#-# 30 HP Agit
30,50,150, 200, 1000 Gal. S/S Reactors 150#/75#

MISC. SPECIALS

PFAUDLER 1500 gal. S/S Reactor
MG 1000, 2000, GPH HOMOGENIZER 3600 psi.
65 HP MODULATIC Seiter 250 psi Gas Fired
SIMPSON 11x5, S/S MIX MULLER
6'6"x 76' Autoclave 150# w/track QOD
-FITZ Mills S/S D, D12, FAS012 & Chilsonator
7"x(any length) AUTOCLAVES 100# Code w/Jact
-100-10,000 sq.ft. Ht./Exchr's S/S & C/S
150 cu. ft. P/K Twin Shell stl. 10 HP
-100-10,000 gal. G/L Tanks & Reactors
Micro - Pulv. 15H S/S 5HP W/Screw Feed

SAVE — PLANT SITE SPECIALS

VIDEX WAREHOUSE SPECIAL
THEO WALTER 225 Gal. Heresite Lined
S/S Reactor 100# F.V./Int.-40# jkt.
10 HP Vari - Drive Dbl. Mot. Agit.

SAVE — JUST PURCHASED

56"x72" Bird horiz. solid bowl cent. su.
Stainslsel Bird 50 Rot Hot Air Dryer w/Burner. C/S
80" Sweco S/S 1-deck screener
2000 gal. Pfaudler G/L reactor w/agit.
Bird 40x60 316 S/S Cent. 114:1 100 HP
Feinc. 9"x7' S/S Rot Vec filter
40"x 120" S/S Rolex Vib. Screen 2-deck
12,000 gal Frp Vert. Tanks (2)
1000 gal. Pfaudler G/L reactor 75#/75# w/agit.
Bird 18x26 S/S Contour Bowl Centrifuge
7'6 6' x 45' S/S CONVEYOR DRYER
22,500 Gal. Tank/silo SS Vert 12 ft. x 24ft.
Tanks- 20,000 Gal. C/S horiz w/Saddles (4)
Sparkler 16511 S/S press leaf filter jkt.
750 gal. S/S reactor 100 # F.V./40 # 30 HP agit.
50 Gal. G/L. reactor/stir
3'x4' Elmco R/L rot. vac. filter
537 sq. ft. Mikro dust collector
Niagara 24 sq. ft. Press. leaf filter S/S
200 gal SS vacuum receiver
M/G Homogenizer 250 M12-8 TBS (6000 PSI)
Patterson, Abbe 3.6 cu. ft. S/S dbl. cone vac. dryer
Stokes 75 sq. ft. S/S vac. shelf dryer
S/S, 15, 85, 150 GAL. STL. D/ARM MIXER JKT.

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5000 Gal. 304 S/S st orage tank, vertical, closed, dished hds.
(2) Richmond 3000 Gal. S/S Reactors, 60/40 PSI, 50 HP 2-Spd.
Richmond 3000 Gal. S/S Reactor, 60/40 PSI, 20 HP.
(3) Pfaudler 30 Gal. G/S Reactors, 60/60 PSI, 1½ HP XP Y/S.
Hercules 500 Gal. S/S Rot. "Roto-Jet" Filter, 316 S/S, 60 PSI.
Jacobsen 6DSF-11 "Universal" Hammer Mill, 100 HP.
(2) Entoleter Type ESM "Centrifil", 48" Dia., 316 S/S, 150 HP.
Simpson "Rotex" model 861 Sifter, 316 S/S, single deck.
Filsmith, 316 S/S, No. DXA3012, 20 HP.
Holo-Flite Screw Dryer, 19' Dia. x 50' L., C/S, jkt. trough.
Chromalox 200 KW Hot Oil Unit.
Chromalox 20 KW Hot Oil Unit (ALL XP)
Sterling 12 KW Hot Oil Unit.
Hockmeyer 50/25 HP High Speed Disperser S/S, XP#2 Spd.
(3) Buhrmeyer model 918 Bard Mills, 30 HP XP.
Morehouse-Cowles 12-30 S 18-25 Sand Mills, 40 & 25 HP XP.
Patterson Steel Ball Mills, 5'x2' & 6'x3' and other sizes.
Abbe 4'Dia.13' Continuous Steel Ball Mill, 60 HP.
Patterson & Abbe Ceramic-Lined Pebble Mills from 15"x21"-up.
Reliable 9"x12" Two Roll Mill, 5 HP.
110 Cu. Ft. C/S heavy-duty ribbon blender, jkt. 30 HP.
(2) Lasco S/S sanitary ribbon blenders, 12.25 Cu. Ft., 2 HP.
J.H. Day "Ross" Blender, 21. Cu. Ft. 316 S/S, MBX
Vetator: (2) 4'x4'x4' L. Tubes, 316 S/S, 10 HP.
Dorr-Oliver "Web-Trol" 6'x9' Rot. Vac. Filter, 316 S/S.
Crandall 8-Gal. subsurface weigh-type filler, S/S, model F-2.
Turbo-Flex 1.15 Sq. Ft. Lab evaporator, 316 S/S, 1 HP complete.
Nichols/Niro 10 ft. Dia. Spray Dryer, 120 #/hr., all S/S.
Baker-Perking & Readco del. arm mixers: 2Vts360 gal., C/S, S/S
Heat Exchanger 480 sq. ft. 304 S/S, 75/15 psi.
(2) Klatz prebreaker, UNUSED Model PB-10, C/S, 20 HP
(4) Klatz extructor, UNUSED Model RT-12, C/S, 10 HP

NEW LIQUIDATION BAUXITE PLANT ... ARKANSAS LOCATION NEW EQUIPMENT

4 x 40' Bartlett-Snow Rotary Kiln
3' x 20' Bartlett-Snow Rotary Kiln
3' x 20' Bartlett-Snow Rotary Dryer
M-400(16") Bird Pusher Centrifuge, 316 SS
18" Bird Horizontal Screen Bowl Centrifuge, 316 SS
12' x 15' Jeffrey Fluid Bed Dryer, S/S
60" Wide Proctor & Schwartz Belt Dryer
Marley Cooling Tower
Multi-Stage Evaporator System

USED EQUIPMENT

9'6" x 250' Traylor Rotary Kilns (2)
6'3" x 43' Traylor Rotary Cooler (2)
8' x 40' Allis-Chalmers Rotary Coolers (2)
8 x 16' Traylor Belt Mills, 450 H.P. (4)
Belt Conveyor-up to 54" wide, up to 500' long
10" x 24" Allis-Chalmers Jaw Crusher
Size 322 Allis-Chalmers Hydro-Cone Crusher
250 TPH Pennsylvania Hammermill
9' x 30' Chatanooga Paddle Mixer (2)
8 x 12' Chatanooga Paddle Mixer
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DRYERS

Drum Dryers/Flakers
(1) 24" dia. x 36" Bullovac SS dble. drum dryer
(1) 33" dia.x 108" Blew Knox CI dble. drum dryer
(1) 32" dia. x 17'8" Sandvik SS belt flaker
(1) 36"dia.x 10' Bullovak CI dble. drum dryer
(2) 42"dia.x120" Blaw Knox CI dble. drum dryer
(1) 48"dia.x 28" drum flaker, chrome plated drum
(1) 48"dia.x 40" CI flaker, mfg. by Buffalo Foundary
(1) 48"dia.x 40 drum flaker, nickel plated drum, mfg. Blaw-Knox

Fluid Bed
(1) 60 Kg. Aeromatic, Batch, 8'x2', 88,000
(1) 100 Kg. Aeromatic Model 5'T 100, sanitary SS
(1) Hupstrick Model FA 250, SS, 20 HP XP

Holoflite
(1) Western Precipitation Model P80SSO-A, twin screw, 12" dia. x 20' long, SS constr., jkt. rated 15 psi, complete with 7.5 HP vari-speed drive.
(1) New/Never-Used Joy Processor, CS, single screw, 18"x18' long, rated 110 psi @ 340° F. sprocket & chain drive by 1.5 HP vanspeed drive.

Rotary Vacuum
(1) 500 Cu. Ft. Stokes, SS constr., compit.
(2) 168 Cu. Ft. Pfaudler, Double Cone, G/L, 30 #/F/50 psi jkt., 15 HP vari-drive
(1) 150 Cu. Ft. Blew Knox, Nickel
(1) 120 Cu. Ft. Stokes, Nickel
(1) 72 Cu. Ft. Blew Knox, SS
(1) 60 Cu. Ft. Titanium Double Cone
(1) 50 Cu. Ft. Gemco, 316SS sanitary, double cone
(1) 37.5 Sq. Ft. Horiz. Thin Film, vac. int. & 150 psig 304/316SS
(1) 37 Cu. Ft. Gemco, SS
(1) 30 Cu. Ft. P-K Twin Shell, 304SS
(1) 30 Cu. Ft. Abbe Twin Cone, 304SS

Spray
(1) 30"/2' Bowen Laboratory w/3' cone bottom, SS constr., w/centrifugal atomizer, 3 HP blower & motor. (1)
(1) Niro lab size 32" diax2'w/2'cone w/centrif. atomizer SS contacts
(1) 16' dia. Bowen compit. system SS contacts, new 1975

CENTRIFUGES

(1) Delaval MAPX 309, SS, 20HP
(1) Unused Model B-10 Podbielniak, Alloy 20
(1) Sharples AS-36, SS
(2) Sharples AS-16P, 316SS
(1) Alfa-Laval SS Decanter, Horiz., Mdl. NX314
(1) Dorr Oliver Mdl. CH3D CSU "Merco," 316SS contacts, 150 HP
(1) Baker Perkins S-12 "Pusher Type," SS, 50 HP
(1) Bird 18" x 18", 316 ELC, contour bowl.
(2) Bird 24"x36", 316SS, 40 HP
(2) Sharples P-3000, 316SS, 30 HP
(2) Sharples P-1000, SS 20HP
(1) Merrad Bird 36 x96, 317L SS
(1) 42" x 120" Tolhurst centrifuge, Kynar lined, perf. basket
(1) Tolhurst 48" x 24" perf. basket, 316SS sanitary, auto. plow & discharge, rated 85 w/cu. ft. @ 900 RPM, 20 HP XP.
(1) Tolhurst 48" x 24" Batchmaster, 316SS, perf. basket, w/hydr. plow & 20 HP hydr. drive
(1) Tolhurst 48" x 24" Batchmaster, rubber lined, perf. basket, w/hydr. plow & 20HP hydr. drive
(1) Tolhurst 48" x 24" Batchmaster, Hercelite lined, perf. basket, w/hydr. plow & 20 HP hydr. drive
(1) Western states 48"x 24", 316 SS
(1) Fletcher 48"x 26" Suspended type, SS perf. basket, 20 HP XP
(1) Sharples Tornado 46" x 30", 316SS, perf. basket, 40 HP XP
(1) Elle Level Model MAPX 210 T24, SS wetted parts
(1) Sharples C-27, 316 SS, wetted parts, 40 HP
(1) Sharples C-20, Super-D-Hydrator, SS, 30 HP
(1) Dorr Oliver Nerecone Soreener Model C-400 X2, all SS, helix screw disch., 10 HP

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1–8' dia. x 50' Bartlett Snow Rotary Dryer, SS, 100 HP.
1–8' dia. x 50' Louisville Steamtube Rotary Dryer, SS clad, 40 HP.
1–11'6" x 70' lg. Bartlett Snow Calcinar, 316SS, 1100°C., complete.
1–11'6" dia. C.E. Reymond Separator, single whizzer, CS constr.
1–24,000 Gal. Mix Tank, SS constr., 18' dia. x 16', 20 HP
1–20,000 Gal. Storage Tank, SS constr., 16" dia. x 14',
2–10,000 Gal. Storage Tank w/-jckt., SS constr., atmos. int., 150 psi jckt.
1–10,000 Gal. Mix Tank, SS constr., 13' dia. x 10', 30HP.
1–10,000 Gal. Mix Tank w/int., coils, 13' dia. x 10', 30 HP.
1–Morley NC Tower, 88"W. x 14'6" L. x 9'H.
1–1130 sq. ft. Micro–Pul Reverse Jet Dust Collector, CS constr.
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EVAPORATORS

(1) 1 Sq. Ft. Artisan "Kontro" Alust-O-Film sys., 316SS
(1) 1.4 Sq. Ft. Luwa Wiped Film, 316SS, 1.5 HP
(1) 1.4 sq. Ft. Luwa thin film SS
(1) 2.5 Sq. Ft. Rodney Hunt Turbo Film 347 SS
(1) 5.4 sq. Ft. Luwa filmtruder, 316 LSS
(1) 8.54 Sq. Ft. Votator Evaporator System, 316 SS contacts, 15 psi @ FV & int., 150 psi jkt.
(1) 8.7 Sq. Ft. Rodney Hunt Turbo-Film, 304 SS contact parts, 15 psi @ FV/150 psi jckt.
(1) 16.8 Sq. Ft. Luwa SS Wiped Film Evap. System, 16/650 psi
(1) 19.5 Sq. Ft. Votator Turbo-Film, 304 Sanit. SS FV/150 psi w/speed drive.
(1) 20 Sq. Ft. Kontro Horiz. Adjust-O-Film, 316ELC, 50 psig, 15 HP
(1) Approx 31 Sq. ft. Vert., Turbo-Film Processor, 304 SS Contacts
(1) Like New 37.8 Sq. Ft. Luwa Horiz. Thin-Film Dryer, 304/316L SS
(1) 40 Sq. Ft. Kontro Adjust-O-Film, SS constr., 20 HP
(1) 47 Sq. Ft. Artisan rising Film, Hast. "C"
(1) Approx 51 sq. ft. Pfaudler Wiped film, 316 SS, 100/65 & FV
(1) 80 Sq. Ft. Xonto Wiped Film Syst. SS constr., FV/150 psi, 40 HP
(1) UNUSED 86 sq. ft. Luwa thin film dryer horiz. 316 L wetted parts, FV int., 150 psi sat steam jkt.
(1) 141 Sq. Ft. Rodney Hunt Turbo-Film, 316 SS 15 psi int., 35 psi jkt 40 HP XP

FILTERS

Pressure Leaf
1–862 Sq. Ft., 316ELC, Hercules, 28 leaves
1–512 Sq. Ft., 316SS, Niagara, 21 leaves
1–400 Sq. Ft. R/L Sparkler
1–327 Sq. Ft., 304SS, Ind. Filter, 11 leaves
1–320 Sq. Ft. Durco 316 SS, 11 Leaves
1–259 Sq. Ft. Pronto Mdl. #3259, 75 psig
1–200 Sq. Ft., SS, Hercules, Horiz.
1–191 Sq. Ft. Enzingar, SS, Vert., 75 psi
1 – 157.64 sq. Ft. Sparkler model 55-S-26, 316SS
1–150 Sq. Ft. Horiz., 12 Vert. Leaf 316SS
1–135 Sq. Ft. Ni, Sowsar, Vert.
1–38 Sq. Ft. Hercules Model 8, 316 SS, horiz. tenk vert leaves 50 psi
1-Sparkler Mdl.#18 O 12, SS const.
1-Sperkler Mdl.#18 O 4, conetr.
1-Sperkler Mdl.#33S 26, conetr.

Rotary Vacuum
1–56.5 Sq. Ft. KS, Inconel 600
1–56.5 Sq. Ft. K-S, 316SS, flexibail disch.
1–87.92 Sq. Ft. Feinc, SS watted parts, spring disch., 56" dia. x 8' face drum
1–132 Sq. Ft. Dorr Oliver, 304SS, mexibelt disch.
1–200 Sq. Ft. Elmco, 316SS, 8'x8'
4–250 Sq. Ft. O.O. 316L SS Precoat, 6" x10', sanit
1–250 Sq. Ft. K-S 316SS, coil disch.
1–300 Sq. Ft. Elmco, 316SS watted parts, precoat type w/knife disch., 10" dia. x 10' drum, compit. w/control panel & aux. equipment
1–314 sq. Ft. Elmco, precoat disch., 316SS
1-400 Sq. Ft. Elmco, CS, Precoat
1–300 Sq. Ft. Elmco, 316SS, belt disch.
1–3'x1' 316SS, knife disch.
1–3'x1' Dorr Oliver, FRP w/receiver & Nash H4 vac. pump, 10 HP
1–3'x 1' K-S comp. sys., 316 SS Flex-belt disch

BLENDERS

800 Cu. Ft. jkt'd. Dbl.Rbn., CS
Approx. 480 Cu. Ft. CS, 75HP
UNUSED 460 Cu. Ft. Marion Paddle, CS, 75 HP
400 Cu. Ft. J. H. Day Dbl. Ribbon Carbon Steel Contr, 40 HP (1)
300 Cu. Ft. CS Dbl. Cone 30 HP
200 Cu. Ft. KS 316SS Dbl. Cone
175 Cu. Ft. P-K Twin Shell, 316SS
150 Cu. Ft. J. H. Day Dbl. Ribbon Carbon Steel Contr, 25 HP (2)
69.3 Cu. Ft. CS Dbl. Cone, 7.5 HP
53 Cu. Ft. Marion Paddle, CS
50 Cu. Ft. 304 SS P-K, Twin Shell, w/int. bar
50 Cu. Ft. Gemco Dbl. Cone, 304SS
40 Cu. Ft. Gemco Twin Shell, SS Bent. Finish
37 Cu. Ft. Gemco SS
30 Cu. Ft. J-S. 304 SS, w/jkt. bar.
20 Cu. Ft. P-K, Twin shell, SS
18 Cu. Ft. Robinson Dbl. Rbn. CS
18 Cu. Ft. NYC Marine SS
10 Cu. Ft. Gemco dbl. cone, CS, 1½HP
10 Cu. Ft. P-K Baxlt Twin Shell 1½HP
10 Cu. Ft. Gemco, CS, Dbl. Rbn.
6 Cu. Ft., SS, Dbl. Cone W/liquid-solids bar 10" P-K slg zag

COFFEE PLANT LIQUIDATION

(1) Mdl. #OASO-8 Fitzmill w/15 HP motor, on stand.
(1) Mdl. #D-6 Fitzmill w/15 HP main motor & 2 HP on stand.
(1) Mdl. #20H Micro-Pulverizer.
(1) Mdl. #3TH Micro-Pulverizer, SS, w/40 HP main motor & ½ HP screw motors.
(1) Micro-Pulsair SS Reverse Jet Dust Collector, Model #64-8-6-20.
(1) 48" Sweco Single Deck Screen w/cover, SS constr., 1 HP
(1) 32" w. x 5' lg. Witte Vibrating Conveyor, SS, w/cover, 2-deck.
(1) 2'x8' Witte SS Fluid Bed Dryer w/perf. plate.
(1) 12" W. x 13' Sandvick Belt Flaker, SS, 5' cooling section.
(1) Stokes Freeze Dryer System, compit. w/prebreaker, micro-vac. & York Chiller.
(1) Reitz Disintegrator, 30 HP, Model #RP12–K122.
(2) Jones Dewatering Presses.
(1) 1800 Gal. SS Jacid. Mix Tank, 3 HP, dished top, flat bottom.
(2) 2000 Gal. SS Mix Tanks, sanitary fittings.
(2) 1600 Gal. SS Mix Tanks, sanitary fittings, ½ HP Lightnin.
(1) 2000 Gal. SS Mix Tank, sanitary fittings, 3 HP Lightnin.
(2) 2000 Gal. SS Storage Tanks.
(3) 1600 Gal. SS Mix Tanks, sanitary fittings, 3 HP Lightnin.
(1) 1000 Gal. SS Storage Tank, agitator mount, (no agitator)
(1) 1000 Gal. Jacid. Mix Tank, atmos. int., 150 psi jckt.
(3) 1600 Gal. SS Mix Tanks, 3 HP Lightnin.
(1) Gaulin Homogenizer, KL 81 SS, Type 800 HG, SS.
(1) Gaulin Homogenizer, KL 24 SS, Type 150 HG, SS.
(2) 22' Dia. Spary Dryers, complete system.

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(1) Carrier 3'x48' Vibrating fluid dryer, 316SS
(1) Podbielniak mdl. #9700-2 Cent., 250 PSI
(1) 5,000 gal. CS, Vertical Sphere, Rated 1007 PSIG
(2) 12'6" dia.x3075" Long Packed Col. 304SS, 275 design press.
(1) 64 sq.ft. U-Tube Heat Exchanger, all 316SS 75/150 psi
(1) 66 sq. ft. Heat Exchanger, all 316SS 75/450 psi
(1) 32 sq.ft. Heat Exchanger, CS/SS 75/450 psi
(1) 800 sq.ft. Heat Exchanger, CS/SS 75 Psi Shell
(1) 1035 sq.ft. Heat Exchanger, All 316SS 75/150 PSI
(1) 1401 sq.ft. Rebolled CS/SS 75/150 PSI
(3) 500 gal. Lyons Lined Plastic Tanks 4'dia.x6½' st.ht.
(1) Fairbanks Morse Gas Compressor 3360 CFM 600 h.p.
(2) 1½ Type ESV Compressors 30 HP
(1) GATS Fabric Air Compressor 60 HP
(1) Corken Compressor 7.5 HP

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3,000 gal Glascote, 50 &FV/ 90 psi
3000 gal Pfaudler, 75/90 psi
2,000 gal Pfaudler, 75/90 psi
1,000 Gal. Pfaudler, 100&FV/90 psi, 4DRW
1,000 Gal. Pfaudler, RA60 Series, 100& FV/90 psi, 4DW
1,000 Gal. Pfaudler, RA60 Series, 100& FV/90 psi, 4TW
600 Gal. SS clad, 60/60 psi
750 gal. DeDietrick, Phila drive
500 Gal. Pfaudler, 100&FV/85 psi, BH drive

Stainless Steel
4,000 Gal. 316SS, Atmos./50 psi, w/hcoils
3,000 Gal. 347SS Blew Knox, 150/50 psi
2,500 Gal. 316L SS, 75/75 psi, 150 psi int. coils
2000 Gal. Nooter Autoclave, 316L 2000 psi, FV int. coils
2,000 Gal. Duesnberg, 316 SS.15/35 & FV int., 50 psi jkt.
1,750 Gal. 316SS Nolte, 1467/50 psi
1,500 Gal. 304SS, 10 HP Lightnin
1,500 Gal. 304 SS, 100/30 psi
1,000 Gal. 304SS, 250/80 psi
1,000 Gal. 316SS, 50/75 psi jkt
1,000 Gal. 316 SS, 15 & FV/50, 10 HP
1,000 Gal. 316 SS, 100/30 10 HP
750 Gal. 316SS, 75 & FV/50 psi
750 Gal. 304SS, 50/60 psi
600 Gal. 316SS, 3000psi, 10 HP
600 Gal. SS, 50 psi, 1.5 HP XP
500 Gal. 316SS, 55 & FV/55 psi
450 SS, 50/75 psi
100 Gal. 316SS, 15/50 psi
100 Gal. 316ELC SS, 500/90 psi

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5 Gal. AMK 304SS Jckt. Kneader Extruder
15 Gal. W.C. Readco Sigma Blade Dbl. arm
25 gal. Readco Del./Arm Sigma Blade jckt. SS construction 15 H.P.
80 Gal. Hockmeyer Pony, SS contacts, 7.6 HP varispeed
100 Gal., SS, Sigma Blade, Jcktd. 40 HP
200 gal. W-P CS dble arm Sigma blade, 20 HP
250 gal. AMK Kneadar Extruder, Sigma Blades, CS constrac, 40 psig,trough jkt.
500 liter Weker hi intensity, SS contact parts
500 Gal. S-W Rubber Cement, CS, 2-10 HP motors (2)
Unused 1000 Gal. Sanitary 316SS B-K Dbl. Motion Change Can; 100&FV/165 PSI, 126HP
Littleford Model FKM-6000, SS
Littleford Model FKM-6000, SS
Littleford Model FKM-2000, SS, w/choppers
7 Cu. Ft. 304SS Nauta Model MSX-70
10.6 Cu. Ft Nauta D-105, CS
Welding Eng. Model 2FV1V26 Twin screw Extruder, SS, Contacts, 150 psi
Koehring mdl. 350, 40 HP
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- Conair mod. Flow-15 ton.
- Acrison mod. 203-1052, 1½", 2½", 4" auger w/ drives. (3)
- Sparkler mod. 18S11, T304 S/S
- Walter 750 gal. reactor, FV/100 lb., jkt. 40 lb., 30 HP van dual motion.
- Walter 225 gal. reactor, FV/100 lb., jkt. 40 lb., 10 HP vari dual motion. Stokes mod. 280 F, 100 ton press.

22435-Meli Mixer, 250 G. sigma, S/S, jkt., vac, 100 HP
22448-B.P. 100 gal. Sigma, S&S, tilt.
22447-0 yne Mill mod. KD200, horiz. (2)
22446-Pfeudler 30 gal. G/L reactor (2)
22439-B.P. 100 gal. Sigma. S/S
22440-B.P. 200 gal. Sigma, tilt.
22441-Pepponmeier 600 gal. Liter Mixer/Coller
22460-P.K. twin shell blender, 1 cu. ft. 325 lbs/cu. ft. L/S stainless. w/drives 5 HP bar, ¼ HP main.
22461-P.K. 1 cu. ft., S&S, 275 lb. density, 30 lb. jkt., vac., ¾ HP vari speed main, 2 HP bar.
22314-Sharples #16 Super Centrifuge S/S, 3 HP, cooling coils clarifier (22)
22351-Atlas Copco air compressor, 800 CFM @ 125 psi, 125 HP. (5)
22198-Gouda Flaker, 4'x4' stainless steel.
22199-Gouda Flaker, 4'x4' stainless steel.
22344-Christian ribbon mixer, 36 cu. ft. steel jacket, 7.5 HP, unitized.
22342-Sheet extrusion line, Prodex 4.5", 24:1 L/D, 50 HP, sheet die, chill roll stack, Femco shear.
22343-NRM Turret Winder, 48-48 w/2 adjusto speed motors, 1 HP
22348-Sheet Coater, 54" steam heated.

MIXER/EXTRUDER

22352-Twin screw extruder (NA Bitruder Co), 55 mm, elect. heated, 20 HP DC pellet die, vac pump used 100 hours
17654-AMK 25 gal. Mixtruder, Sigma, ST 7.5 HP.
18298-LH. Day 25 gal Dispersion, 25 HP vari main, 10 HP vari screw.
20995-AMK 30 gal. S/S, jkt. Sigma, 7.5 HP Main, 0 HP screw.
21334-Ross 40 gal., S/S hot oil jkt., Sigma 8" disch. screw.
19828-AMK 50 gal. ST, jkt., Sigma.
19421-AMK 75 gal. ST, jkt . Sigma, 10" disch. screw.
17136-AMK 120 gal., ST Sigma, 11.5" screw.
14832-AMK 150 gal., S/S, Sigma 15HP main, 10HP screw
19494-AMK 150 gal., S/S Sigma, 50 HP main, 10 HP screw
20118-AMK 150 gal., ST. Sigma, 15 HP/10 HP
502527-New Aaron 300 gal., T304SS. mix extruder, Sigma, jkt., up to 200 HP main, 75 HP hyd. screw. STILL INSTALLED . . . CALL NOW!

21350-B.P. 500 gal. Sigma steel, jkt. 125 psi,150 HP, Hyd. tilt

21459-Baker Perkins Mixer, dbl. arm, C/S, 300 gal. Geared both ends, 100 HP, mod. 18JUMMZ.

MIXERS – PLOW

503755-Littleford, FKM 600D, SS jacketed, 25 HP.
20754-Littleford. FKM 3000D 65 CF, S/S, full jacket.
19214-New Plow Mixer, 80 cu. ft. 347SS, jacket, 100 HP.
20828-Littleford FKM 4200D, S/S, 87 cu. ft. JKT.

MIXER RIBBON

21120-Ribbon Blender, S/S, 10 cu. ft., jkt. SS, 150 psi.
20276-Read ribbon blender, 14.7 cu. ft. 304SS, 3 HP.
20816-Unused Day, 316SS, 23 cu. ft., 5HP.
20189-Robinson, 25 cu. ft., S/S, jacket, 10 HP.
20985-Int'34 cu. ft S/S dbl. ribbon, 5 HP. (4)
20212-Haas nbbon, 38 cu. ft., S/S, 15 HP.
18268-Ribbon Mix 80 cu. ft. T304 SS, 5 HP (4)
19556-Howe, 115 cu. ft., sanitary S/S, double spiral ribbon.
20863-Strong Scott blender, 130 cu. ft., 304SS, 25 XP gear motor.
21124-Ribbon Blender, 304SS jkt., 150 cu. ft., 30 HP.
20614-Unused JH Day ribbon, S/S 270 cu. ft., 25 HP.
21114-JH Day ribbon blender, S/S clad, 75 HP, 480 cu.ft.

FILTER PRESSES

19848-Shriver P&F filter press, 12"x12" alum. plates. closed delivery, 23 chambers.
20534-Sperry Filter Press, 30", alumn.
20538-Sperry filter press 30", 35 Aluminum plates, 357 sq.
15370-Shriver 32" x 32", polypropylene, 27 plates, ratchet closing.
15928-Shriver ALP, plate & frame, 18 36" x 36", S/S recessed plates.
18799-Clow/Bathlehem filter press, 36", recess plates, 25 chambers.
20075-Sperry filter press, 36", cast iron plates, closed deliv.
19462-Independent filter press, 42" x 42", polypropylene, 4 eye closed, 34 chambers.
20550-Sperry filter press, 42" Encl closer, 41 alum. plates.

CANADIAN BUYERS LIQUIDATION–QUEBEC

22373–Reactor, 3500 gal. 8'x9'H, S/S clad. agit, dimple jacket.
22361–Reactor, 5000 gal. 10'x92"H, T316S clad, internal 330 lb. jkt 75 lb., agit 30 HP, vari speed. (2)
22379–Philadelphia, 7V63 agit drives, 10 HP, S/S (4)
22388–Siebetechnik H-400 centrifuge conlurbex horz. screen, S/S, 20 HP.
22385–Climatrol water chiller LFV151172, 40 tons.
22385–Cyclone Sepeartor, 40" dia. x2 plus 6" cone. S/S, Joy fan 15 HP
22375–Sweco 30", 3 deck, S/S, ½ HP (2)
22387–Waukesha mod. 300, Sanl pump, 8"x8", 15 HP.

FILTER-ROTARY VAC.

15826-FE,Inc. 36" dia.x12", S/S, string disc., 1/2 HP.
17477-FE, Inc., 3' dia x 5', T316SS, belt disc., vac pump.
11177-Dorr Oliver S/S, 5' dia. x 8'L.
11653-Oliver T-316SS, precoat 5'3"x9'.
19434-K.S. Reubelt, 8' dia. x 8' face, 316SS.
18392-Eimco belt filter, 6'x10', steel drum, w/wash pumps.
15827-Ametek, 8' dia x 14'0" face, mat-belt, S/S.
17938-Eimco, 316SS, 10' dia. x 14', knife discharge.
17283-Impco belt filter, 12' dia. x 12', 304SS, Nash vacuum
20251-K.S. T304, vacuum filter, 12' dia x 14', 304SS.
20323-Dorr Oliver 11'8"x18' face, S/S cont. parts.
11485-Eimco 10'x10'rotary vac. filter.

PRESSES

UNUSED Manesty Express, 10 ton, 20 stations.
11602-Colton Press mod.260, 31 die stations, 1800 TAB.
21382-FJ Stokes rotary tablet, 15 station, 10 ton.
21418-Manesty rotary tablet, 18 station, 10 ton.
14425-Stokes Teb Press mod. #551, 51 station, 4 ton.
21417-FJ Stokes rotary, 27 station, 4 ton, double sided.
503881-Komarek Greaves, mdl. 75MSS briquetting press, 20.5" dia x 4.5" face.
13392-Fitzpatrick Chilsonator, 50 HP, mdl. HA-50-30-210.
18802-Stokes single punch press, 800-530-1 (74), 12 ton.
17224-Dorst compac., series TPA15, 20 tons.
10860-Stokes, mdl. R-4 press, 20 ton.

22215-Wilmes Bladder Press, S/S, 38" dia. x 8'9" long, horiz, 5 HP, unitized. (2)

DUST COLLECTORS

21125-Fabri-Jet (dl.SQ9-4B bin vent, 42 sq. ft.
18398-Mikro dust collector, S/S, 63 sq. ft., mdl. 9-8-100, pulse jet.
21183-EVO, bin vent, 72 sq. ft., S/S, 5 HP
20253-Unused EVO pulse jet collector, mdl. 848F009C, 90 sq. ft.
21182-JH Day mdl. RJ-18RJ36, 125 sq. ft., CS, 3 HP.
21222-Fabri-Jet, mdl. SQ16-8D, 181 sq. ft.
20398-Pulse jet collector, "FlexKleen," mdl. 58CT24 AV II w/175 sq. ft., cloth, C.S.
21286-Mikro dust collector, 285 sq. ft., S/S.
20259-Unused EVO Corp. pulse jet dust collector, mdl. 88BF030C. 350 sq. ft.
20256-Unused EVO Corp. dust collector, shaker type. mdl. MS048C10. 575 sq. ft.

SCREENS

21203-Sprout Waldron sifter, D10, 8 decks.
21150-Sprout Waldron, D10, 1 HP, 10 decks, S/S cont.
21157-Sprout Waldron, D10, 2HP, 10 decks, S/S cont.

UNUSED CENTRIFUGES

21593-Sharples P5400 Ssnitery Centrifugss w/200 HP motor, 25 HP backdrive, gearbox, 5" pitch conveyor, CIP, control panel (2) LATE MODEL

CENTRIFUGES

20627-Bird, 18"x24" steel, conical bowl.
20828-Bird, 24"x36" steel, con. bowl, gearbox.
20819-Bird, 24"x38", S/S, 15 degree, contour bowl.
20684-Bird 24"x60", H series, steel w/motor.
20364-Bird 32"x 50", SS T316 contour, 75HP.
12883-Bird 36"x98" contour, 10 deg., T317 ELC.
20137-Alfa Laval, NX 418-B31-60, 316SS, gearbox.
17308-Dorr Oliver, 304SS, Merco mdl. 18L, 30 HP.
13585-Sharples, mdl. P 600, gearbox, motor.
19787-Unused Sharples, 3 phase, P3000, S/S, carbide.
20407-Sharples P2000 316SS, 20 HP drive motor.
21359-Sharples P3000 w/gearbox.
20686-Sharples P3000, 52:1 gearbox, S/S casting.
21725-Sharples, P3400, S/S, gearbox & motor.
18249-Sharples, P5400, 316/317SS, 200 HP, gearbox.

CENT-BASKET VERT.

21408-Delaval 22"x16" perf. basket hyd. drive.
15815-Delaval Mark III, perf. basket, 40"x24", 316SS, 30 HP, hydr., drive.
18446-Sharples Sludge-Pak, SP-5500, 40"x24" basket centrifuge.

ROTARY VAC DRYER

22210–Bertrams, S/S 6'dia. x 12' dished heads, half pipe coil jacket 200 psi, 20/13 HP, unfitzed.

FILTER PRESSES

19848-Shriver P&F filter press, 12"x12" alum. plates, closed delivery, 23 chambers.
20534-Sperry Filter Press, 30", alumn.
20539-Sperry filter press 30", 35 Aluminum plates, 357 sq.
15370-Shriver 32" x 32", polypropylene, 27 plates, ratchet closing.
15928-Shriver ALP, plate & frame, 18 36" x 36", S/S recessed plates.
20076-Sperry filter press, 88", cast iron plates, closed deliv.
19462-Independent filter press, 42" x 42", polypropylene, 4 eye closed, 34 chambers.
20550-Sperry filter press, 42" Encl closer, 41 alum plates.

Special Sale
MUST MOVE STAINLESS TANKS
12,000 GAL., T304SS, 12'Dia.x 14' high, flat bottom, open top (16)
PRICE $8000 ea. FOB PA #20655

TANKS-S/S

22257-UNUSED Tank, 100 gal., T304SS, 30" dia., DH
22253-UNUSED Tank, 550 gal., T304SS, 4' OD, DH.
22268-UNUSED Tank, 1200 gal., T304SS, 5' dia. x7"H, DH.
21283-Tank, S/S vert., 1200 gal., 8' dia.x8', flat top & bot.
22255-UNUSED Tank, 1800 gal., T304SS, 6'8" dia. x 7'8"
22254-UNUSED Tank, 3,000 gal., T304SS, vac., 5'dia x 21'½, coll.
20661-Tank, SS, 8000 gal., agit., 12' dia. x 14'8" H.
20655-Tank, SS, 12000 gal., 12' dia. x 14', flat bottom, open top.
17043-Jos Oat horz. tank, 304SS, 16,000 gal., 12'8" dia. x 22'9½" long, 10 PSI.

REACTORS

20252-Unused Reactor, 600 gal., 304SS dimple jktd.
10139-Pfeudler, 800 gal., T-316 L SS, 55 PSI int/150 PSI.
20928-Brighton, 4000 gal., 8' dia. x 10', 316 ELC S/S
20458-Reactor, 4,000 gal., 316 S/S, 8' dia. x 7'8" st. side.
15475-Brighton, 4000 gal., 316SS, vacuum.
20237-GH Hicks, 4000 gal., 816 SS, pipe coil jkt.
20923-Richmnd Eng. Reactor, 4500 gal., T316 stain/clad.
Pfaudler 10,000 gal. reactors T316L, 100 psi int, 150 psi.
Pfeudler 15,000 gal, reactor T316L, 100 psi int., 200 psi jkt.

LIQUIDATION SALE

LARGE POLYSTYRENE PLANT

ILLINOIS LOCATION

21888-Pfeudler Reactor, 1,500 gal., 316L SS dimpjkt.
21886-Pfeudler Reactor, 10,000 gal. 316L SS dbl. jkt. HP. (4)
21800-Pfeudler Reactor, 15,000 gal. 316L SS dbl. jkt. (3)
21887-Metal Arts Corp. vessel, 17,000 gal. vac. 316L SS. (2)
21888-Brighton Corp. Tank, 12,000 gal. vac, 316L SS.
21875-Bine, 176 cu. ft., S/S, cone bottom flat top (2)
21861-Bine, 450 cu. ft., C/S, epoxy lined. (8)
21804-Bine, 450 cu. ft., C/S, epoxy lined. (6)
21805-Bine, 500 cu. ft., C/S, epoxy lined, flat top, cone bottom. (4)
21818-Worthington cent. pump, C/S, 15 HP, 3600 RPM, 44 psig (2)
21818-Union Pump–Inline, C/S, mod. 4x6x8.5 VDX, 6 HP. (4)
21806-Edw Renneburg Rot. Dryer, S/S, steam hvt, 10 HP. (4)
21881-Heetere, C/S steam, type BNF 2420 (6)
21814-Flotronics bin vent, filters, 122 sq. ft., 12 bags
21888-Kahron Feeder twin screw, S/S mod. 5400-1000
21801-Sparkler filter, 352 sq. ft. C/S, mod. VR 30-52
21882-Screw conveyor, 304 SS, 7" dia. x 11', 11 HP.
21886-Strong Scott Rib Blender, 25 cu. ft., 5 HP. (2)
21820-Welex extruder 6", 30:1 L/D, 400 HP.
21870-Welex extruder 8", 30:1 L/D, 800 HP.
21875-Conair pelletizer, S/S, mod. 1024, 40 HP. (3)
21874-Water bath, S/S, portable. (4)
21887-Rose Basic Mixer, 304SS, 3"x6 blades. (4)
21817-Ingersol Rand pump, in-line pump, C/S, 30 HP.
21815-Goulde, C/S turbine pump, 200 HP. (2)
21813-Worthington cent. pump, S&S, 2 HP. (4)
21812-Union pump-inline, S/S, 7.5 HP (2)
21810-Tank, 840 gal., flat top & bottom.
21820-Modern Welding Tank, 4800 gal. horiz. nble fined.
21878-Gorman Rupp pump, centrifugal C/S, mdl 82EZ. (2)
21871-Prodex extruder 6", 30:1 L/D ratio, 800 HP.
21892-Buffalo blower, size 30, C/S, 10 HP (3)
21886-Buffalo exhaust fan, size 36, type S, 15 HP.
21880-Sutor Bill Blower, C/S, 40 HP. (4)
21822-Buffalo blower, type 40-3CS, 40 HP. (4)
21894-Buffalo blower, mod. 45-3CS, 75 HP. (3)
21883-Bird, 32x 50 centrifuge, 50:1 gearbox. (2)

21883–Bird Centrifuge, 32x60, 50:1 gearbox.

21863-Environeering scrubber, mod. AS3-14000
21895-Tank, 650 gal. vert. coat'er epoxy lined.
21811-Tank, 54000 gal. vert. C/S epoxy coated for top/bot.
21903-Tank, 50,000 gal. vert. C/S epoxy, flat bot. conical top.
21902-Worthington compressor, mod. 4866-2, vert. 25 psi. (2)
21878-Sweco sifter 60", mod. LS60S6, 2.5 HP.
21923-Kason sifter 60", mod. K60186, S/S, 1½ HP.
21884-Flotronics Cyclone mod. FTHC37P-L, 20 HP 12" dia. sieh top. (3)

ATTENTION: EAST COAST BUYERS!
61,000 gal. Tanks, T304SS, 19'dia.x32'1" tan top & bot., Chemineer Agit., mod. 7HTD-20, 20 HP, 27 RPM. (4)

CMR MARKETPLACE

CHEMICAL MARKETING REPORTER'S CLASSIFIED ADVERTISING SECTION

COPY DEADLINE: Wednesday Noon preceding date of publication.

RATES/Classified Ads: $57.75 for 36 words or less; $9.75 for each additional six words or fraction. No display. First two words printed in bold face type. Non-display advertisements payable in advance, except for contract customers (not subject to agency commission).

REPLIES: Send replies to classified ads with box numbers to CHEMICAL MARKETING REPORTER, 100 Church St., New York, NY 10007-2694.

INFORMATION: For further classified advertising information, call 212/732-9820.

BUSINESS OPPORTUNITIES

26 percent interest in an Organic Synthesis Specialty Plant. Available for $35,000. Centrally located in Pennsylvania. Good for entrepreneur having products to be manufactured or strong following for custom manufacturing. Quick turn-around possible. Contact CMR Box 748.

We want to acquire a profitable chemical export trading company with min sales of $3 million. Write Meridan Curtis, 7886 Browning Rd., Pennsauken, NJ 08109 or call 609-885-8484.

CHEMICALS OFFERED

Glycerine natural USP 88.5 — new drums — low low prices regular supply — available from New Jersey/Baltimore/Houston/West Coast warehouses. Inquire now. Write C.M.R. Box No. 728.

Pharmaceuticals Oligsd Excess inventory: 650mg BR Aspirin in 100's and 75mg SR phenylpropanolamine HCL in 30's. Vorax Laboratories, P.O. Box 3617, Englewood, CO 80112. Phone – 303/789-4496.

CHEMICALS OFFERED/WANTED

Chem/Mart Corp. will buy all of your surplus or off spec. chemicals, plastics, pharmaceuticals and resins. Current bargain offerings: 22M lbs. Pentaerithritol Tetrastearate; Der 667 Resin: 40 dr. Ethomeen T-30; 19M lbs. Kraton 04141; Calcium Acetate, U.S.P. and Gallic Acid. Prompt efficient Nationwide service. Chem/Mart Corporation, 840 N. LaSalle St. Chicago, IL 60610. (312) 787-8800.

CHEMICALS WANTED

Active Buyer of surplus chemicals, pigments, dyes, resins, waxes, plastics etc. Call toll free 1-800-631-3337 or 617-329-6736. Deer Polymer Corp. Chemical Div. 17 Industrial Drive, Holden, MA 01520.

All Surplus — Chemicals — Resins — Oils — Colors Solvents — Plasticizers — Specialties — Intermediates — bought by: Rambach Chemical Co., Inc. 52 Vesey Street, PO Box 5187, Newark, NJ 07105. Phone: (201) 589-7774.

Cash For your surplus chemicals, resins, colors, pharmaceuticals, dyes, other raw materials, by products, wastes, residues and off-spec materials. Morgan Chemicals Inc., 5500 Main Street, Williamsville, NY 04221 (716) 832-4000; Telex 918133.

Resilux Top Value from the sale of your surplus Chemicals. We buy surplus Chemicals, Plastics, Resins, Waxes, etc. Bonmar Chemical Co., P.O. Box 484, Fair Lawn, NJ 07410. Phone: (201) 791-2448; Telex: 13-0434.

Resyn Corp. will buy your surplus chemicals, resins and resin raw materials — prime or off-specification. Resyn Corp. P.O. Box 63, 1540 W. Elancke St., Linden, NJ 07036. (201) 862-8737.

Sludges, residues byproducts, catalysts, off spec or contaminated material, surplus, etc. containing any base, precious, refractory, minor etc. metals. Sharper Alloys Inc., P.O. Box 231, St-Jean-Sur-Richelieu, Quebec, Canada. Tel 514-349-2534.

Surplus Chemicals: Wanted, high prices paid for surplus chemicals, resins, pharmaceuticals, colors, plasticizers, solvents, waxes, etc. Prompt and efficient service. Try us for better prices. Chemisales Inc., 107-27 160th Street, Jamaica, N.J. 11433. (718) 658-0400-01.

Surplus Wanted: Chemicals, pharmaceuticals, dyes, solvents, pigments, waxes, other raw materials. Over 55 years service Chemical Service Div., P.O. Box 848, 87-08 Ongley St., Rockville Centre, NY 11571. (516) 536-5533.

We Buy Surplus chemicals, colors, resins, solvents, plasticizers by-products, etc. Over 50 years of service to industry. Eastern Color & Chemical Co., Inc. 65 Roosevelt Ave., Dept. C, P.O. Box 1028, Valley Stream, N.Y. 11582. (516) 791-4445.

EQUIPMENT OFFERED

Dimentier has used process equipment for sale: Columns, exchangers, heaters, reactors, pressure vessels, tanks, etc. Midwest Steel Co., Inc., 9825 Moers Road Houston, Texas 77075. 713/991-7643.

Drying System — Complete Chemical Unit Operation consisting of 2-42" x 120". Atmospheric Double Drum Dryers with chrome drums, all stainless steel accessories including S.S. hoods SS conveyors, and S.S. bucket elevators coupled to a 5' x 25' S.S. concurrent gas fired rotary dryer. All with required drives, motors, steam accessories and approved gas unit for rotary dryer. S.S. Cyclones S.S. scrubbers, etc., all available and in place. This drying system designed for continuous operation and thru put of 40,000 lbs. to 100,000 lbs. day dependent on product required. Will consider sale of part or whole. Write or call: Jarchem Industries, 40 Bail St., Newark, N.J. 07105. 201-344-0800. Attention: Bob or Jutie.

EQUIPMENT OFFERED

Pilot Plant for sale — Westlake KA 25 sq centrifuge, JH Day 54 cu. ft. jacketed ribbon blender, Alsiaela (Entoleter) 15 x 21 granulator, Derrick 3 screen dewatering vibrator, moyno pumps, ss screw conveyors, tanks, plus other process equipment. Loc. Mass (617) 682-6407.

Process Equipment for sale; Baker-Perkins Ter-Mear centrifuge 316ss, 5/ton/hour capacity with hydraulic push for unloading. Aeromatic fluid bed dryer 316SS, 200 Kg/hours capacity. Bellmore air cool cooling tower 125 ton capacity. All equipment is in excellent working condition. Equipment is being sold below used equipment cost. Call 818-787-2038.

SERVICES OFFERED

Custom solids packaging and distribution in the port of Mobile, Multi-wall bags, bulk bags, drums and bulk. Screening, repackaging and warehousing. Rail and truck facilities. Contact: Philip Hahn, SEAPAC, Bldg. 14A, Brookley Complex, Mobile, AL 36615, 205/433-3541.

Reconditioned Drums, cut packaging costs. High grade reconditioned steel drums to meet all DOT specs. 15 gallon-85 gallon. Linings our specialty. Truckload discounts. Used drums removed. Call Drum Service N.Y. 716/694-0255, outside N.Y. 1-800/828-8913.

CHEMICAL IMPORTS

Continued from Page 61

TITANIUM DIOXIDE Rhone Poulenc 800 bgs (41,843 lbs) (Rouen) Le Havre, 10/16.
Sacco Pigments & Solvents 2,400 bgs (120,372 lbs) (Sea Land Leader) Algeciras, 10/14.
SCM 2,540 bgs (136,858 lbs) (Sea Land Develope) Rotterdam, 10/10
Leschaco 4,560 bgs (238,600 lbs) (Stuttgart Express) Antwerp, 10/15.
NL Ind 48 pll (122,884 lbs) (Atlantic Compass) Gothenburg, 10/20.
Rhone Poulenc 2,400 bgs (125,530 lbs) (Rouen) Le Havre, 10/13.
3,200 bgs (167,374 lbs) (Rouen) Rotterdam, 10/16.
TOLUENE DIISOCYANATE Klockner Chemical 152 dms (61,462 lbs) (Libra) Vancouver, 10/16.
TRICHLOROTRIFLUOROMETHANE 1 lnk (39,663 lbs) (Rouen) Rotterdam, 10/18.
TRIETHYLENEDIAMINE Jansi Int Fwdrs 100 dms (6,986 lbs) (Ming Moon) Kobe, 10/13.
TRIMETHYLPHENOL Stoll Tank Containers 1 lnk (35,816 lbs) (Ming Moon) Kobe, 10/13.
TRIPHENYL PHOSPHATE Monsanto 1,280 bgs (73,545 lbs) (Atlantic Compass) Liverpool, 10/20.
TRISODIUM PHOSPHATE Rhone Poulenc 340 bgs (36,977 lbs) (Rouen) Le Havre, 10/15.

U-Z

ULTRAMARINE PIGMENT Ecca shpg 16 plt (41,310 lbs) (Husum) Rotterdam, 10/10.
VITAMINS Hermann Ludwig 25 dms (12,016 lbs) (Stuttgart Express) Hamburg, 10/16.
WOOL GREASE Amerchol 108 dms (48,259 lbs) (Husum) Rotterdam, 10/10.
Amerchol 60 dms (1,682 lbs) (Columbus Louisian) Melbourne, 10/10.
Geradon 60 dms (37,105 lbs) (Columbus Louisian) Melbourne, 10/10.
ZINC CHLORIDE Penalpine 1 bxs (60 lbs) (American Georgia) Bremerhaven, 10/12.
ZINC PYRITHIONE 155 dms (44,057 lbs) (Westermarsch) Bremen, 10/18.
ZINC SULFATE Penalpine 1 bxs (16 lbs) (American Georgia) Bremerhaven, 10/12.
ZIRCONIUM CARBONATE PASTE Magneolum Elektron 160 dms (41,667 lbs) (Westermarsch) Felixstowe, 10/18
Amerchol 60 dms (1,682 lbs) (Columbus Louisian) Melbourne, 10/10.
Geradon 60 dms (37,105 lbs) (Columbus Louisian) Melbourne, 10/10.
ZINC CHLORIDE Penalpine 1 bxs (60 lbs) (American Georgia) Bremerhaven, 10/12.
ZINC PYRITHIONE 155 dms (44,057 lbs) (Westermarsch) Bremen, 10/18.
ZINC SULFATE Penalpine 1 bxs (15 lbs) (American Georgia) Bremerhaven, 10/12.
ZIRCONIUM CARBONATE PASTE Magneolum Elektron 160 dms (41,667 lbs) (Westermarsch) Felixstowe, 10/18.

CHEMICAL PROFILE

Continued from Page 70

OUTLOOK

The possibility of further phosphate bans, which now affect 25 percent of the US detergent market, overshadows the business. Provided no further bans ensue, liquid encroachment should balance tripoly growth within the powdered detergent segment, resulting in relatively flat demand for the next several years.

Generic Drugs Are Not Always Priced Lowest

A survey of almost 900,000 prescriptions has found that generic drugs are not always cheaper than their brand name counterparts, even though pharmacies pay less for the generics.

In fact, saya Bernard Bloom, an economist at the University of Pennsylvania, the survey determined that two common drugs — one used to treat menopause and the other high blood pressure — generally are more expensive in generic form.

Mr. Bloom said he could not explain the reason for the price difference but said the implications were clear. "My best advice to the consumer is just shop around," he said.

In Friday's edition of the Journal of the American Medical Association, Mr. Bloom said they examined 892,000 prescriptions written in 1984 for 21 brand name drugs and their generic equivalents at 1,400 pharmacies in 39 states.

The researchers found that, on average, brand name drugs were slightly more expensive than generics, but there were notable exceptions.

It says "Lasix," the brand name for a diuretic prescribed for high blood pressure, was the same price or cheaper than its generic equivalent two-thirds of the time.

"Premarin," a brand named hormone prescribed for menopausal symptoms, was as good or better a buy than generic estrogen in 80 percent of the cases examined.

The researchers also discovered wide price variations for all drugs and found "an important number of individual consumers" who paid more for a generic than they would have for the brand name.

"We were shocked by the results. I mean literally shocked," Mr. Bloom remarked. "I don't want to heap any abuse on either pharmacists or drug manufacturers, because I can't really be sure who's to blame. The consumer doesn't care why anyway. They just want to know which is the least expensive."

Twenty-five states require pharmacies to pass generic savings along to consumers, but only 19 insist the full savings be preserved. Mr. Bloom said he does not support more restrictive laws because the current ones already are impossible to enforce.

Overall, the price differences per pill were usually minor, involving no more than "a couple of bucks" for each prescription, Mr. Bloom said. "But for the elderly," he noted, "a couple of bucks is a lot of money, especially if you're refilling your prescription every couple of weeks."

Schering Corp. Sues to Protect

Schering Corporation, Farma Food A/S and associated companies have filed suit in the Federal District Court of New Jersey in Newark, charging a manufacturer and distributor of diet products with trademark infringement and unfair competition.

The complaint charges that the defendants are distributing a diet product bearing the trademark "Fiber Slim" that infringes the plaintiffs' "Fibre Trim" trademark. The complaint also charges that the label of the Fiber Slim product simulates the label and carton of the "Fibre Trim" product.

Farma Food owns the registered trademark "Fibre Trim" and manufactures the product. Schering Corporation has exclusive U.S. distribution rights.

The defendants named in the civil action are Nature's Blend Products, Inc., of Farmingdale, N.J., and Bernard Farber, its president.

Schering and Farma Food are seeking both preliminary and permanent injunctions prohibiting the defendants from continuing to supply diet products under the trademark "Fiber Slim" or any other trademark confusingly similar to Farma Food's trademark "Fibre Trim," or from otherwise competing unfairly with the plaintiffs. The complaint also seeks treble damages, the recovery of defendants' profits from the sale of the product complained of, and an award of attorneys' fees and legal expenses.

On Oct. 9, Schering filed suit against American Pharmaceutical Co., Inc., of Passaic, N.J., and earlier, on Aug. 26, against Lil Laboratories, Inc., of Sun Valley, Calif.; MK Laboratories, Inc. (formerly known as Laboratories, Inc.), of Skokie, Ill.; Cerilla Pharmaceutical Laboratories of Largo, Fla., and Jewett Drug Co. (Inc.) of Aberdeen, S.D.

The purpose of these suits is the protection of the packaging graphics of Schering's "Afrin" nasal decongestant spray, its "Dr. Trimeton" allergy product, and its "Lotrimin" athlete's foot remedy, as well as protection of Schering's trademark "Pyrilamine." These suits are still pending.

Chemical Firms Rank High in NSC Study

The chemical industry is again among those industries having the safest workplaces in the United States, according to a report submitted to the National Safety Council.

Chemical Manufacturers Association says the industry's standing is second only to that of the textile industry as published in the council's 1986 edition of *Accident Facts*.

Rates are based on the number of incidents of occupational illness and injury lasting days away from work and deaths.

The chemical industry reported 0.8 cases for each 100 full-time employees, an incidence rate only slightly higher than that of the industry's 0.46.

Chemical workers are more than 4 times safer on the job than the average industrial employee, according to Robert Roland, president of the Chemical Manufacturers Association.

Mr. Roland says the annual statistics "have shown the chemical industry to be the safest industry in this country during the past six years."

Incidence rates for industries other than the chemical and textile industries range from 0.65 for agricultural chemicals to 9.6 for the transit industry.

OBITUARY

Hans Stauffer

Hans Stauffer, former president of Stauffer Chemical Company, died at his home in Bronxville, N.Y., on November 14, 1986 after a long illness. He was 86 years old.

Mr. Stauffer, a native of Osthofen, Germany, joined his uncle, John Stauffer, founder of the company, in San Francisco in 1924. After retiring in 1967, Mr. Stauffer served for one year as chairman of the executive committee and remained a director until 1971.

Under Mr. Stauffer, the company became publicly owned and its headquarters moved to New York. The company, now known as Stauffer Chemical Company, is currently through a series of acquisitions now a part of Chesebrough-Pond's.

PERFUMES & FLAVORS

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ing of the dollar on international markets," he says.

AROMA CHEMICALS

TERPINEOL — Import levels of terpineol and its ester, terpinyl acetate, have fallen dramatically in the past year. January through August, 1986 totals reached 176,376 pounds, only 38 percent of the total for the same period last year: 469,523 pounds. The decrease has been attributed to the decline in availability of Chinese terpineol.

"The lack of Chinese imports has made the domestic suppliers' position far more favorable," says a US supplier of terpineol. He adds that both the terpineol and terpinyl acetate are in great demand: "The market is tighter as a result and prices are climbing."

Pricing for terpineol had remained constant for over two years when a price increase, reflecting the limited availability of the perfumery grade chemical, of almost 40 percent was recorded in late September. Terpineol is now listed at $1.45 to $1.50 per kilo, cost and freight New York, up from $1.05 per kilo, same basis.

ESSENTIAL OILS

BALSAMS — Balsam peru and balsam copaiba firmed in the last two weeks as the market experienced delayed Central American shipments combined with dwindling inventories. Spot prices for the balsam peru jumped 50c. per pound from $4.10 to $4.60 per pound; balsam copaiba shipping prices strengthened 20c. per pound to $1.75 f.o.b.

"Inventories are very limited," says an essential oils broker, citing a steady demand and insecurity about the upcoming shipments. "Shipments have been interrupted," concurs an importer, "to a large extent by the earthquake in San Salvador." He emphasizes that there is no shortage of material at point of origin, rather an inability to transport what is there.

Sources speculate that prices for the balsam peru and balsam copaiba will continue firm while shortages continue: "Until shipments resume, prices will remain higher because what little material is still in stock is bought by many buyers."

BERGAMOT OIL — After a late September firming trend when essential oils sources anticipated a small Calabrian harvest, (CMR 9/22/86 p. 28) bergamot oil has begun to soften. Reports of a strong and plentiful crop chipped away at the high spot prices bringing them down $1 per pound. Shipping prices were affected also, coming down from $45 and $46 per kilo cost and freight New York to around $42 per kilo.

This is the bergamot oil's harvesting time," says one essential oils broker, "so people have a better idea how much material will be on the market." An essential oils importer adds that "the bergamot crop must have been quite substantial for the prices to drop so quickly."

The essential oils broker emphasizes the effect of currency fluctuation on this market: "The fluctuation played a large part in September's firming because it took that many more dollars to buy the Italian material." The subsequent softening, however, is not due to a change in the currency market because the lira is continuing to strengthen against the dollar. Sources agree that the softening must be due solely to reports of the new Mediterranean crop.

Barely other possibility, adds one source, is that the Chinese are beginning to make their way into the international bergamot oil market.

CANANGA OIL — Cananga oil spot and shipping prices softened last week in response to reports that inventories at point of origin, Indonesia, are building up faster than demand can relieve them. Spot prices softened about 50c. on the kilo to $18 to $19 cost and freight New York.

Producers must be accumulating the oil faster than buying can accommodate," says an essential oils broker. "Supply is simply in excess of demand."

An importer says that the recent devaluation in the Indonesian rupiah has contributed to the softening of cananga oil prices. Though the devaluation didn't affect most of the exports, he adds, a material suffering from oversupply could have the devaluation "catch up" with it and help to depress the price further.

PAPRIKA — Spanish paprika and oleoresin of paprika spot prices have increased over the last month from 5c. to 7c. per pound for all grades. The primary reason for this is the amount of damage done to the Spanish crops by three steady weeks of rain. Sources quote from 10 to 15 percent of the crop was destroyed by the loss of field drying crop in the period.

Compound, the problem for US buyers is the weakness of the dollar on the international market. Spanish producers are holding the prices up in light of their quantitative losses and other currencies, such as the Japanese yen, can afford to pay the higher price.

Domestic producers of paprika and oleoresin of paprika are taking advantage of the current Spanish market and lowering their prices to attract disaffected buyers of the Spanish material.

A spice broker envisions continued tightness on the paprika market, noting a slowdown in Spanish processing that has accompanied the rain losses. "If they don't step up the rate of production, there may not be a surge of material available to US buyers."

COATINGS & PLASTICS

Continued from Page 49

santo's new "Butycite" sheet and captive resin capacity came on line at its Springfield, Mass. plant this Summer, while Du Pont boosted its "Saflex" capacity by 20 million pounds, in two separate plant expansions, one completed in May, the other by the end of October.

With demand strong this year, supplies of resin and sheet have been very tight. Even though producers have been operating plants at full capacity, demand still exceeds capacity, they say.

Worldwide demand for PVB sheeting, three-quarters of the total market, is said to range between 150 million pounds and 200 million pounds per year. The market is growing, particularly in the automotive segment, as laminated safety windshields become the norm abroad. Next year, Japan will require all automobile windows to be laminated, a move which should boost demand, and possibly US export levels.

The US market for PVB is estimated to be around 96 million pounds; between 70 and 90 million pounds of this is sheet, the remainder resin for coatings applications. Within a framework of 4 percent per annum overall growth, the US automotive sheet demand is showing 2 percent growth; in contrast, architectural sheet is growing at 10 percent per year.

Exports currently stand at about 10 million pounds per year; producers feel this number may increase substantially over the next two years to meet heightened demand abroad.

Coatings applications are myriad, producers explain, catering to individual, specialized customer needs; currently, the major areas of concentration are "wash primer" coatings, magnetic wire, marine and corrosion-resistant coatings, flow agents and photoimaging applications such as reproductive toners.

Demand for reproductive dry toners, which use PVB as a binder and toughener, have been growing 15 percent per year for the past two years, and are expected to sustain this growth rate over the next few years.

Ceramic binder applications represent one new growth outlet for the resins, which are being used as "green strength" binders in tape casting construction of capacitors and other circuit components.

Prices for the resin, dependent on PVOH (polyvinyl alcohol) prices, were last increased in April and currently stand at $2.80 per pound. PVB sheet prices have been stable for the past few years, producers relate, at 50c. per square foot for both architectural and automotive sheet grades; specialty sheet grades sell for as high as 80c. per square foot.

Producers feel the recent expansions should ease current tightness, and enable them to keep up with growing demand.

POLYSTYRENE — Polysar Inc. has followed Huntsman Chemical Corporation and Dow Chemical Company in raising selling prices for its lines of polystyrene by 3c. per pound, although the firm has announced a later effective date of January 1.

Huntsman and Dow announced similar increases, with a 2c.-per-pound increase for specialty and colored grades, to be effective December 1.

American Petrofina, a division of Cosden Oil and Chemical Company initiated this second round of polystyrene price increases in response to additional styrene monomer price hikes. Petrofina's increase, announced for November 1, will probably be delayed in response to market pressures, a spokesman announced previously.

PLASTICS ADDITIVES

SILICATES — PQ Corporation will raise list and selling prices for its "Q-Cel" hollow silica microspheres by 3 percent effective January 5, the company announced last week.

New truckload prices for "Q-Cel" Grade 200 will be 4c. per pound higher, at $1.44 per pound. Grade 300, also to rise 4c. per pound, will be listed at $1.29 per pound.

The microsphere products are used in a wide range of applications including low density fillers for plastics composites and as sensitizers in explosives.

Sandoz Spill

Continued from Page 9

causing problems similar to the ones in the Hudson River stripped bass fishery (because of PCB contamination).

In France, the authorities have already banned fishing for the next six months in the Rhine and its direct tributaries. Over on the German bank, North Rhine Westphalia area water treatment plant is expected to be reopened shortly and drinking water is expected to be taken from the river in Dusseldorf.

In Holland the situation is uncertain as the country gets two-thirds of its drinking water from the river. It was, according to press reports, unclear whether the Dutch would seek compensation for the accident from the Swiss government or from Sandoz.

A spokesman for Sandoz, M. Fazel, was quoted as saying "It goes without saying that damages were caused by this fire. We are responsible, and there is not a shadow of a doubt that we will take care of it...We feel badly about it, and I would say that we are shocked and saddened by what has happened to us."

Sabic Planning N.Y. Sales Firm

Saudi Basic Industries Corporation, which is ten years old this year, is moving to "decentralize" its sales activities now mainly conducted out of the company's Riyadh headquarters.

Abdullah S. Nofaidi, president of Sabic Marketing, Ltd., the company's wholly-owned global marketing subsidiary, told reporters attending the K'86 plastics and rubber trade fair in Dusseldorf, West Germany, that the company will create new sales companies in London, the site of an existing Sabic office, and in New York. It had been expected that the company would set up its US sales base either in New York or in Houston.

He said the companies will, in effect, move key sales functions closer to existing and potential customers, as well as established distribution centers around the world.

Mr. Nojaidi notes that Sabic has completed its first-generation projects and is now concentrating on optimizing the efficiencies of existing plants, developing downstream projects, developing new grades of existing products and implementing plans for a research and development facility.

The company started production of a new downstream VCM/PVC plant recently and has introduced a new hexene-comonomer, high alpha-olefin formulation of polyethylene.

Sabic's affiliates now produce more than 20 distinct products in nearly 100 different grades, he says, and these are marketed to some 2,000 customers in 60 countries.

ADVERTISERS' INDEX

CHEMICAL PROFILE

SODIUM TRIPOLY

November 17, 1986

SUPPLY

PRODUCER	CAPACITY*
FMC, Carteret, N.J.	85,000
FMC, Green River, Wyo.	150,000
FMC, Lawrence, Kan.	100,000
FMC, Newark, Calif.	120,000
Monsanto, Auguste, Ge.	87,500
Monsento, Cerondelet, Mo.	80,000
Monsanto, Long Beach, Calif.	80,000
Monsento, Trenton, Mich.	80,000
Occidental, Delles, Tex.	80,000
Occidental, Jeffersonvills, Ind.	60,000
Olin, Joliet, Ill.	175,000
Stauffer, Chicago, Ill.	25,000
Total	1,102,500

*Tons per year of sodium tripolyphosphate. Capacities are somewhat variable, depending on the density of the meteriel produced; most facilities meke other phosphates as well. FMC is expanding its Green River capacity to 250,000 tons per year by the end of 1987 and is reducing output at Carteret to mainly food grade STPP. Monsento completed the closure of its 120,000-ton-per-year Kearney, N.J., plant in the third quarter of this year. Stauffer has 80,000 tons per year of capacity idle at Morrisville, Pa. Profile last published 4/1/84; this revision, 11/17/86.

DEMAND

1985: 610,000 tons; **1988:** 610,000 tons; **1990:** 595,000 tons.

GROWTH

Historical (1978-1985): Minus 1.5 percent per year; **future:** minus 1 to 0 percent per year through 1990.

PRICE

Historical (1952-1988): High, technical, $39.50 per cwt., bulk, f.o.b., freight equalized; low, $6.50 per cwt., same basis. **Current:** $37.50 per cwt., same basis.

USES

Home laundry detergent builder, 52 percent; industrial and institutional detergents, 21 percent; dishwashing detergents, 16 percent; food uses, 4 percent; miscellaneous, 2 percent; exports, 5 percent.

STRENGTH

Renewed emphesis on powder detergent marketing this year is giving tripoly s push on supermarket shelves. Reformulation is boosting tripoly content in phosphate-containing detergents. Modernization and the closing of high cost plants is trimming production expenses for the industry.

WEAKNESS

Non-phosphate liquid laundry detergents continue to encroach upon STPP markets, although at a slower pace, and now command 30 percent of the home detergent business. Imported tripoly, accounting for about 5 percent of the market, has had an effect on pricing.

Continued on Page 71

PLATFORM

Anderson on Insurance

The following is an excerpt from a speech on the liability crisis given by Union Carbide's Warren Anderson before the recent annual meeting of the National Association of Casualty & Surety Executives.

Although Union Carbide has been actively involved at both the state and federal level on the tort reform issue, this is my first time at bat on the subject in a public forum. But a lot of business speakers have preceded me, and someone said we could fill the mall at the Washington monument and still not get a product liability reform bill out of Congress.

And the reason is not hard to understand — it's mainly that the plaintiff's bar, and the consumerist groups that oppose business on this and most other issues, could fill the mall, Pennsylvania Avenue, and R.F.K. Stadium.

That's the kind of risk calculus a lawmaker understands.

Where do we go from here? As you know, there is some progress on the issue in the various states.

Some, like California, Washington, and Connecticut have moved boldly in an effort to curtail abuse of the system. Others, the experts say, have left loopholes big enough to make their reforms all but meaningless.

What the states do seem to agree on is a belief that a piecemeal approach to the problem will not succeed.

A policy statement adopted last month by the National Governors Association said in part, and I quote, that "the issue of product liability reform has increasingly pointed to federal action as a way in which to alleviate the problems faced by product manufacturers with regard to inconsistent state product liability laws."

The statement goes on to say that "this lack of uniformity makes it impossible for insurers to predict accurately the potential liability of a product. Clearly," the governors say, "a national product code would greatly enhance the effectiveness of interstate commerce."

Hope springs eternal, and perhaps the next Congress will see fit to do the job its predecessors have neglected. If it does, what kind of system can we hope for?

I will leave the details to the legal scholars and experts, although I would nominate four reforms as crucial to increasing the predictability of the system:

I think any reform measure should deal with the question of joint and several liability. I see no rational reason for a defendant with only marginal involvement in an accident to be stuck with the whole judgment.

Municipalities in particular are up in arms over this, and with good cause.

Second, awards for pain and suffering — the non-economic damages — should be subject to some limit. Punitive damages should also be limited — in amount and/or conduct that is truly willful or reckless. As things stand now, a jury could award a plaintiff $5,000 or $5 million without any rhyme or reason for the difference.

Third, there ought to be a sensible collateral source rule. The rule says you can't show that a plaintiff recovered expenses from another source, and that you can't deduct the payment from this recovery. But if a plaintiff has already recovered his legitimate losses, why should the defendant have to provide him with a profit?

And fourth, manufacturers need a state-of-the-art defense. Without one, a manufacturer can be liable for a risk he could not have known about or anticipated when he introduced the product.

Some of the states have moved in this direction, but we need the same rule in all 50 so that manufacturers and insurers can have some confidence that they will not be liable for something scientists may discover 10 years from now.

Basically, we ought to work toward a system that can tell us either that someone is liable or he isn't. The system we have now can take the same evidence and reach either conclusion, with any number of gradations between.

Neither a business nor its insurer can run a reasonable operating or financial decision when liability is a wild card.

Here's my own view of what liability should mean:

I think corporations should pay their individual share of losses where they did something wrong that caused the loss.

I think that doing something wrong should imply that there was at least some negligence. It should mean failure to apply knowledge in existence at the time a product is made, or at least some failure to meet statutory requirements.

The return to a fault based standard of liability was also at the top of the list of recommendations at the 1986 White House Conference on Small Business. It took precedence over other issues ranging from taxation, to regulation, to international trade.

Finally, I think expert testimony should be taken only from those people whose qualifications are well recognized by their profession.

These few rules would go a long way toward making the system clear, daily more predictable, which would go a long way toward ending the lottery. But what would we get in return?

We would have a civil justice system that all of us can understand. And it might also be one that commands our respect, and reflects not only the deep desire of Americans for fairness, but our need for rationality in a system that so profoundly affects our economy and our future.

JOBS & PEOPLE

Stuart R. Maconochie, who has been appointed deputy regional manager in Europe for the R.P. Scherer Corporation. Mr. Maconochie will become regional president in Europe, Scherer's largest geographic operating unit, on April 1, 1987.

ROBERT S. HSU has been appointed senior research associate in the chemical research department of Hoechst-Roussel Pharmaceutical, Inc... CHARLES S. RIGBY has been elected national sales manager in the Specialty Chemicals Division of Veisicol Chemical Corporation... KENNETH E. JONES has been named operations supervisor at the Andrews, S.C. production facility of M&T Chemicals Inc.

ROBERT L. CRESPO has been appointed assistant treasurer of Witco Corporation... JOHNE AIKEN has been named sales agent for the Canadian provinces of Quebec and Ontario at Ferro Corporation's Bedford Chemical Division... WILLIAM J. LUDLUM

R.S. Hsu

C.S. Rigby

Grow Group Elects Manager and V-P

Grow Group Inc. has appointed William H. Rembold manager of operations for Devoe Marine Coatings Company and Michael G. Sloan vice-president for the Western Division of Marine Coatings Company and Devoe Napko Protective Coatings, divisions of Grow Group Inc.

Mr. Rembold will be responsible for all operations at the Riverside, Calif. and Pennsauken, N.J. plants. Prior to his appointment as manager of operations, he was manager of distribution for Devoe Marine.

Mr. Sloan will be responsible for all marketing, sales and technical services for both Devoe Marine and Devoe Napko in the Western United States, including Alaska and Hawaii.

W. Rembold

M. Sloan

has joined Haarmann & Reimer Corporation as account executive in the Aroma Chemicals Division.

K.E. Jonas

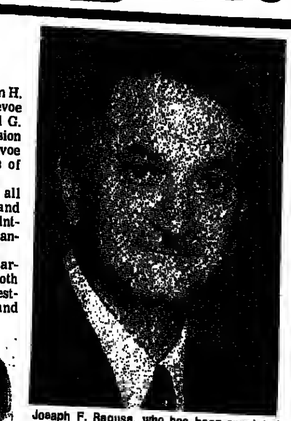
R.L. Crespo

DONALD R. LEHMAN has been named director of business services and operations of the Portsmouth, Va.-based subsidiary of Celanese Corporation, Virginia Chemicals... FRANK A. TELESCA has been appointed to the newly-created position of welfare manager for pool products at the Chemicals Group of Olin Corporation... JOHN A. NIKLES has joined Crowley Company of New York as Midwest manager of sales and product development.

R. BARNES PARSONS has been named general manager and vice-president of health sciences marketing and JACK W. LOWE has been appointed director of international marketing at Eastman Company... SARAT CHANDRASEKHARAN has been named marketing manager for automotive adhesives at Ciba-Geigy Corporation.

FRANK GIAMBRONE has been appointed general manager of La Prairie and ARNOLD PACITTINGER has been elected senior vice-president of sales both of Jacqueline Cochran, Inc... KEN RICHARDS has been named manager of specialty sales at Southern Talc Company.

JAMES E. HALL has been appointed national sales manager for Lancy International, Inc... JAMES A. TICHICH has been named plant manager in Dallas for Ashland Chemical Company's Electronics and Laboratory Products Division.



Joseph F. Reguse, who has been appointed vice-president and regional manager of the Southeast and South Central regions for Thompson-Hayward Chemical Company. Mr. Reguse will be responsible for all branch locations in the Southern half of the United States.

Air Products Names Two New Managers

Air Products & Chemicals, Inc. has appointed Daniel M. Buck business manager of "Airopak" container systems and Kenneth J. Kallish sales manager for "Airopak" containers.

Mr. Buck will manager Air Products' efforts to manufacture and market solvent-barrier plastic containers and automotive fuel tanks.

Mr. Kallish will be responsible for organizing the sales of "Airopak" containers throughout North America.

D. Buck

K. Kallish

D.R. Lahman

F.A. Telesca

J. Aiken

W.J. Ludlum

MEETINGS CALENDAR

November 17, 1986

THIS WEEK

CHEMICAL MANUFACTURERS ASSOCIATION, chemical industry conference, Palmer House Hotel, November 17-18, Chicago, Ill.

DRUG, CHEMICAL & ALLIED TRADES ASSOCIATION, Fall luncheon, Waldorf-Astoria Hotel, New York, November 19.

EUROPEAN PETROCHEMICAL ASSOCIATION, intermodal transport seminar, Frankfurt Sheraton Hotel, Frankfurt, West Germany, November 20-21.

FERTILIZER ROUND TABLE, Sheraton Inner Harbor Hotel, Baltimore, Md., November 17-19.

THIS MONTH

LATIN AMERICAN PETROCHEMICAL ASSOCIATION, sixth annual meeting, Rio Palace Hotel, Rio de Janeiro, Brazil, November 23-25.

DECEMBER

CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION, 73rd annual meeting, Marriott's Harbor Beach Resort, Fort Lauderdale, Fla., December 7-11.

NATIONAL ASSOCIATION OF CHEMICAL DISTRIBUTORS, 15th annual meeting, Ritz-Carlton-Naples Hotel, Naples, Fla., December 2-6.

SALES ASSOCIATION OF THE CHEMICAL INDUSTRY, annual Christmas party, New York Hilton Hotel, New York, December 16; education committee, seminar, "The Psychology of Selling," Treadway Inn, Saddle Brook, N.J., December 18.

LATER ON

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, center for chemical process safety, International conference on chemical safety issues, Omni Shoreham Hotel, Washington, D.C., February 3-5.

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS, 12th annual Spring workshop and exhibition, Skyline Ottawa Hotel, Ottawa, Ontario, Canada, April 27-30.

CHEMICAL MARKETING RESEARCH ASSOCIATION, Houston Meeting: "The US Chemical Industry-Responding to Change," Westin Galleria Hotel, Houston, Tex., February 4-5, 1987.

CHINACHEM '87, international exhibition on chemical and petrochemical industries, China International Exhibition Center, Beijing, China, April 3-9.

CHLORINE INSTITUTE, Winter meeting, Mayflower Hotel, Washington, D.C., March 15-19.

DRUG, CHEMICAL & ALLIED TRADES ASSOCIATION, 61st annual dinner, Waldorf-Astoria Hotel, New York, March 19.

FERTILIZER INSTITUTE, 1987 annual meeting, Marriott Orlando World Center, Orlando, Fla., February 1-3.

INSTITUTE OF GAS TECHNOLOGY, 11th annual symposium on energy from biomass and wastes, Hotel Royal Plaza, Walt Disney World Village, Buena Vista, Fla., February 2-6.

INTER-SOCIETY COLOR COUNCIL, scientific conference, Williamsburg Lodge, Williamsburg, Va., February 3-11.

NATIONAL PETROLEUM REFINERS ASSOCIATION, 85th annual meeting, Convention Center, San Antonio, Tex., March 29-31; 12th international petrochemical conference, Convention Center, San Antonio, Tex., April 5-7.

POLYURETHANE MANUFACTURERS ASSOCIATION, Spring meeting, commercial development of processable systems, Fairmont Hotel, Dallas, Tex., March 26-29.

SOAP AND DETERGENT ASSOCIATION, 59th annual Meeting and Industry Convention, Boca Raton Resort and Club, Boca Raton, Fla., January 28-February 1, 1987.

SOCIETY OF THE PLASTICS INDUSTRY, 42nd annual conference of the reinforced plastics and composites institute, Cincinnati Convention & Exhibition Center, Cincinnati, Ohio, February 2-6.

THE FERTILIZER INSTITUTE, 1987 Annual Meeting, Marriott Orlando World Center, Orlando, Fla., February 1-3, 1987.

BUSINESS BRIEFS

AMOCO PERFORMANCE Products, Inc. will move into new quarters in Ridgefield, Conn. this Friday (November 21). The organization was formerly Union Carbide Corporation's engineering plastics group, headquartered in Danbury, Conn. Amoco acquired the business earlier this year. The company's high-performance plastics include polysulfone, polyarylate, polyketone and other resins for a wide variety of end-use applications.

CRULES INCORPORATED has named Atochem Chemical Corporation, Akron, Ohio, distributor for key peroxide and pentaerythritol products to the rubber industry in the East of the Rocky Mountains. Harwick has represented Hercules in the Western states for over a decade. Hercules will continue to support the rubber industry by supplying technical assistance, when needed, from its laboratory lab in Wilmington, Del.

ATLACK, INC., Wilmington, Del., has been granted a license to transport liquid and dry bulk commodities between the US and the Province of Ontario. Operating authority for the trucking company to carry bulk commodities from and to points in Ontario comes after more than a year of proceedings and testimony from shippers and others carriers. Matlack is committed to a two-year business plan which includes operating a facility in Canada and hiring necessary sales, terminal and driver personnel to service the area.

MEDIAN DIAGNOSTICS, Inc., Cincinnati, Ohio, has finalized a licensing agreement with the University of Arizona which allows the company to produce the first test kit utilizing monoclonal antibodies to detect *Cryptosporidiosis.* The parasite, found occasionally in healthy individuals, is a serious complication in patients with acquired immune deficiency syndrome (AIDS), resulting in a life-threatening loss of fluids.

MINNETONKA CORPORATION, Minneapolis, Minn., will distribute and market a product of hair-thioning treatment developed by Crinos Industria Farmacobiologica, SpA, Como, Italy. The product, called "Foltene," has been marketed in Europe for over five years and grew out of Crinos' research on one of its major drug products, "Ateroid," for arteriosclerosis. Recent announcements of hair treatment products resulting from cardiovascular research include Upjohn Company's "Rogaine" and Ludwig Laboratories' "Viprosol."

NATIONAL SCIENCE Foundation says private industry spending for research and development is expected to grow approximately 5 percent during 1987 to nearly $80 billion. This is down from the average annual growth rate of 13 percent during the previous ten-year period. Poor sales expectations in durable goods, concerns about short-term profitability and the need to restructure R&D efforts after corporate mergers, are cited as reasons for the modest increase. The electrical equipment industry plans the largest average annual increase from 1985-1987 — 10 percent — followed by chemicals and aircraft at 9 percent each.

PETROLITE CORPORATION says it has a new patented water treating product called "Vector" VS-3050 that can provide effective dispersion as well as scale inhibition in both high-temperature process systems and conventional cooling water systems. Described as a unique organic liquid, Petrolite says the product's high thermal stability — up to 350 degrees Fahrenheit — permits full system protection even under upset conditions.

ROHM AND HAAS Company is offering a new eight-page brochure describing the company's "Paraloid" impact modifiers and processing aids for polyvinyl chloride packaging applications. The lines contain products specifically designed for production of clear or opaque bottles, clear or opaque sheet and film, injected molded parts and interior profiles. All are FDA approved, the company says.